AUGUST 31, 1959

PAPER TRADE JOURNAL

New British Mill Makes Treated Paper By Adding Latex At Beater

Gilbert Paper Co. Starts Up New Valley Paper Machine

New Cotton Linter Pulp Made Specially For Absorbent Papers

Bleaching Northern Hardwood Soda Pulps To High Brightness

1

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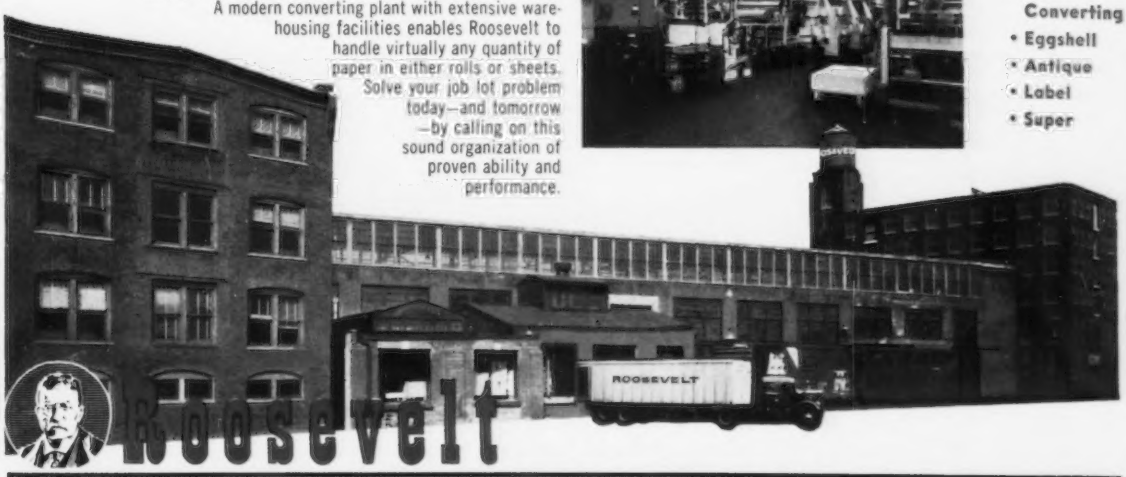

Roosevelt

PAPER COMPANY

ARAMINGO AND CUMBERLAND • PHILADELPHIA 25, PA.

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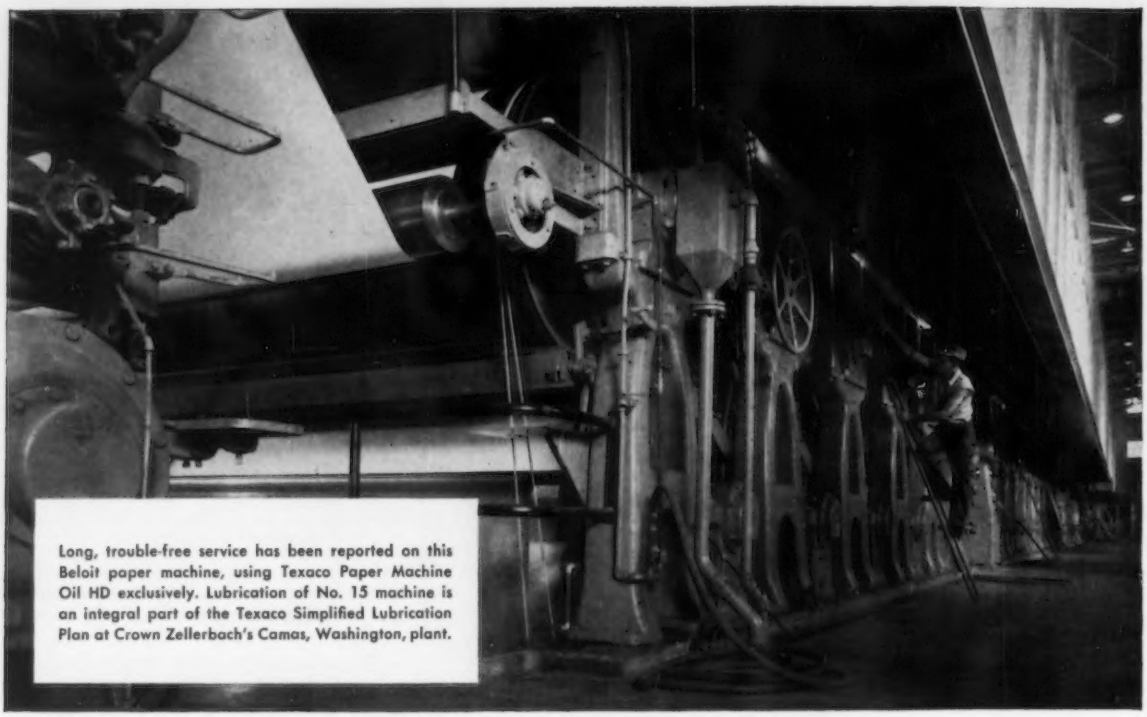

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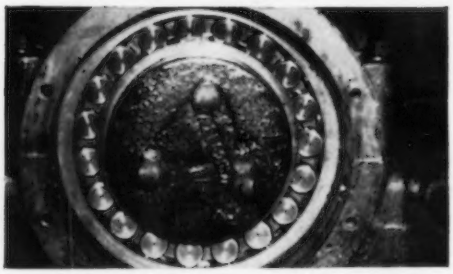

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(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

PAPER TRADE JOURNAL

PUBLISHED WEEKLY SINCE 1872

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Week of AUGUST 31, 1959—*Vol. 143, No. 35*

TRENDS 9

NEWS OF THE WEEK 11

FEATURE ARTICLES

Flexible No. 2 Begins Production at Gilbert 20

Dewey and Almy Builds 'Polyfibron' Pilot Plant 23

New British Paper Mill Specially Built to Make Latex Treated Papers 24

New Modified Cotton Linter Pulp Shows Interesting Properties 26

High Brightness Soda Pulp from Northern Hardwoods 28

PAPER PEOPLE 13
NEWS OF CONVERTERS 16
PRICES OF FIBERS 32
NEW EQUIPMENT & SUPPLIES 33
NEWS OF SUPPLIERS .. 40
NEW LITERATURE 48
FIGURES OF THE WEEK 50
OBITUARIES 50
CLASSIFIED ADVERTISING 53
ADVERTISERS INDEX .. 58

REMEMBER THESE DATES

September 9-11. TAPPI Fundamental Research Conference, Institute of Paper Chemistry, Appleton, Wis.

September 13-16. National Paper Trade Ass'n. Fall Meeting, Conrad Hilton Hotel, Chicago, Ill.

September 15-17. 9th TAPPI Corrugated Containers Conference, Jung Hotel, New Orleans, La.

September 21-23. Paper-Plastics Conference, Edgewater Beach Hotel, Chicago, Ill.

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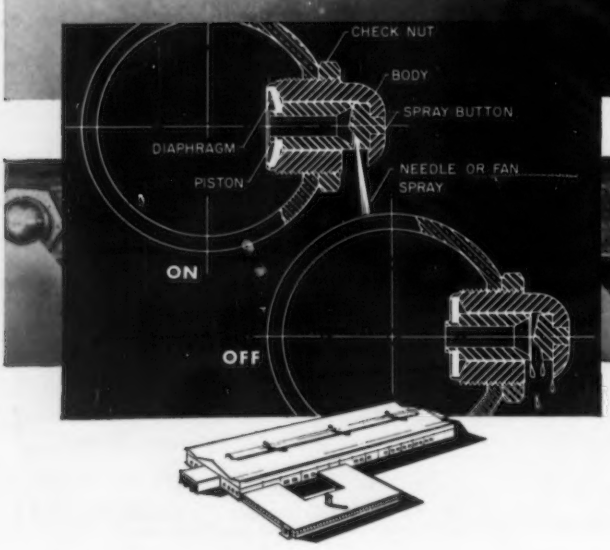

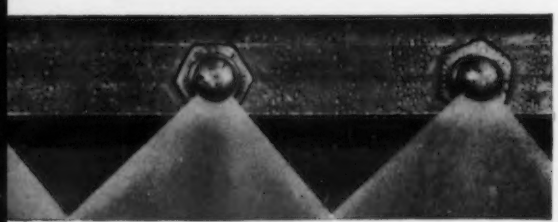

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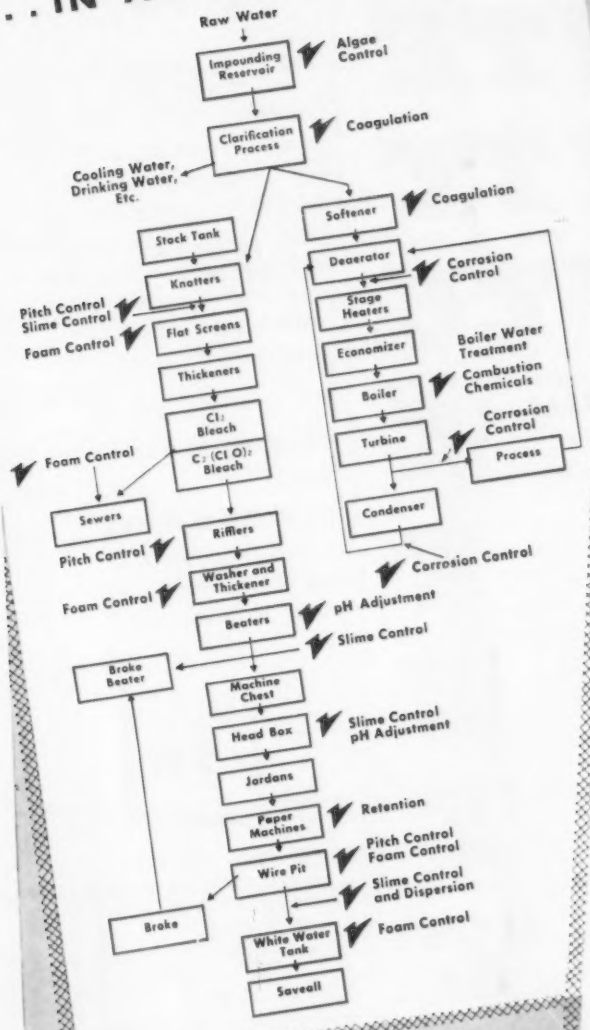

NALCO has the *widest variety* of formulas to assure results in your mill, too. Here are some examples . . . representative Nalco products listed under headings which indicate the job they do. And the chart at left tells you where they are used. Your Nalco Representative will tell you more about them — or write direct to Nalco.

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Nalco 71 · Nalco 71-B · Nalco 71-C · Nalco 71-D5 · Nalco 71-K · Nalco 72

CORROSION CONTROL
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about the extremely smooth and durable surfaces of Distributor Rolls with GUARDITE covers. Find out about their corrosion resistance; heat resistance, and trouble-free characteristics which put paper money in a paper man's pocket.

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Port Coquitlam, British Columbia, Canada

Trends

Newsprint Consumption and Production Records

U. S. newsprint consumption continues to increase with a new July record as well as a record high for a first seven months' period. North American newsprint production in July was 6.5% above July 1958. In the U. S., newsprint production set the highest July level on record. U. S. output for the first seven months was 11% above the same period a year ago and Canadian output was up 2%. U. S. production made up 24% of the total North American production in the seven month period.

Pulp Imports Up 21% in Six Months

Total U. S. wood pulp imports (Bureau of the Census) were up 21% for the first six months compared with the same period a year ago. The comparison for the two periods by principal countries is as follows: Canada + 17%, Sweden + 96%, Finland + 49% and Norway —1%.

Folding Boxes Hold Gains

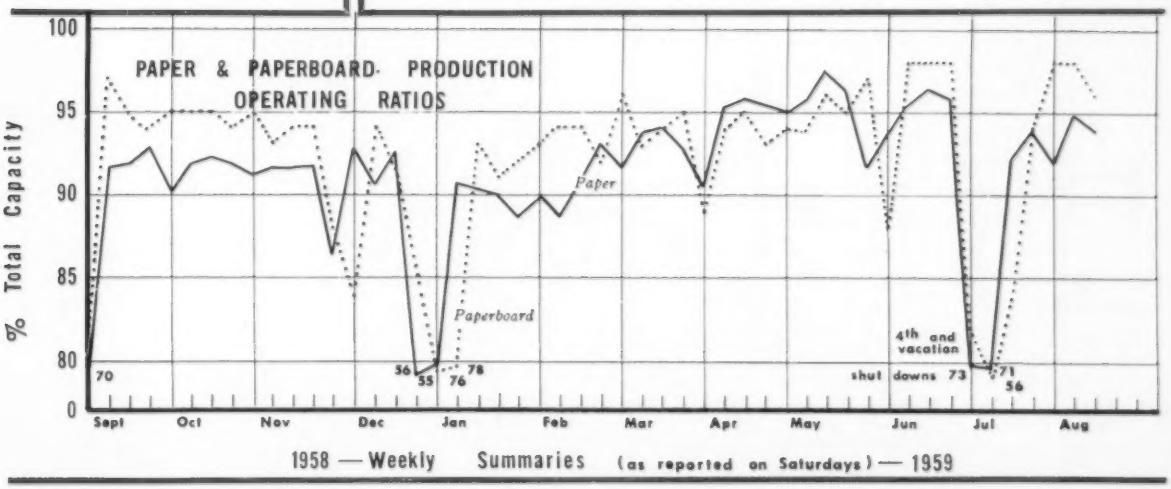
Shipments of folding cartons during July set a new high for any July on record, according to the Folding Paper Box Ass'n. of America. Dollar volume of shipments in July topped a year ago by 3. 3% and tonnage was up 0.7% over last year. The total for the year is now 4% ahead of the first seven months of last year in dollar volume and 3.2% ahead of 1958 in tonnage. Shipments of folding boxes usually drop as much as 15% from June to July, but this year July shipments only lagged 7% behind June. Industry volume for July amounted to $73,900,000, almost $2,400,000 greater than the same month last year.

Cans and Tubes Still Gaining

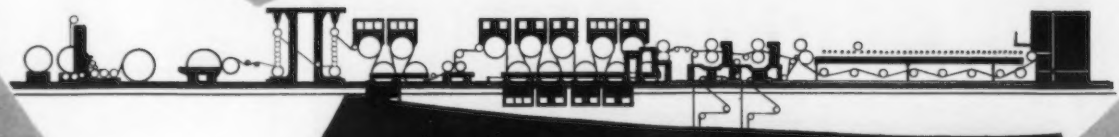
Production of fiber cans and tubes in the first seven months is running 19% ahead of a year ago. Total output is running at an annual basis of $150 million according to Paul S. Hanway, managing director of the National Fibre Can & Tube Ass'n.

$1 Billion for Business Forms!

American business last year spent over one billion dollars for printed business forms. This estimate is by A. S. Gherlner, president, Cullom & Gherlner Co., Nashville, Tenn., printers.



56 DRYERS



14 DRYERS

The two paper machines sketched above are identical in production and quality of product.

The Rice Barton Gardner Dryered machine requires less space, costs less to install, and costs less to operate.

If you are thinking about a new paper machine, look into the only truly modern paper machine on the market.

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PJT PAPER TRADE JOURNAL

WEEK OF AUGUST 31, 1959

New Name and Trademark For Weyerhaeuser Official

The word "timber" will be dropped from the name of Weyerhaeuser Timber Co. in September. At the same time Weyerhaeuser Co. will adopt a new symbol for the products it manufactures at plants in 26 states. It is an abstract tree within a triangle.

When the company was formed 60 years ago, it was exclusively in the business of managing timberland. Timber is still its basic resource, but its use in the company title does not indicate adequately the wide range of products now manufactured.

The name change will apply only to the parent company and Weyerhaeuser Sales Co. Other subsidiary companies will retain their names, but adopt all other phases of the new identification system.

The Kieckhefer-Eddy division title, created in 1957 by the merger of Kieckhefer Container Co. and The Eddy Paper Corp. with Weyerhaeuser, will be discontinued. Its operations will be grouped under divisional titles descriptive of function or product.

At eight integrated mill sites in western Washington and Oregon, Weyerhaeuser produces containerboard, kraft and sulphite pulp, Prestologs, plywood, hardboard, lumber, bark and wood fiber Ply-Veneer, chemicals and moldable wood fiber.

Pulp and paperboard is manufactured at mills in Michigan, New Jersey and North Carolina. Milk cartons are produced in 11 states. Shipping containers and folding cartons come from 24 plants in 18 states.

Gulf States to Make Board at Demopolis

Production of bleached food board at Gulf States Paper Corp.'s Demopolis, Ala., mill will begin in September. Output of the mill in the past has been confined to bleached pulp and a small quantity of white book paper for the company's converting operation at Tuscaloosa.

This new bleached kraft pulp mill began operation last year. The pulp drying machine was designed to permit its conversion to paper and board manufacture. This conversion is now under way with completion expected in a few weeks.

When board production begins operation will be on a split schedule with operation part time on board and part time on pulp.

Major additions to the board machine include a horizontal size press, a fifth dryer section, calender stack, coating section and another calender stack. The coating section includes first two dryers, a Beloit trailing blade coater, followed by a Waldron air knife coater and a Ross high velocity air drying system.

Powell River Buys Great Lakes Freighters

The powerful 137-foot deep sea tug, N. R. Lang of Kingcome Navigation Co., Ltd., has sailed from Vancouver, B.C., to Montreal to pick up three canal-type freighters which she will tow back to Vancouver.

Powell River Co., Ltd., has taken options on 12 Great Lakes freighters, each about 250 feet long, which are not needed since the opening of the St. Lawrence Seaway. The intention is to convert them in B.C. to barges for the transport of hog fuel and chips.

The Lang will take about 26 days to reach Montreal. The long homeward tow, with the three freighters in tandem, will take about two months. It is hoped the Lang will be able to make another voyage to Montreal to pick up three additional ships before the winter freeze-up.

Work to Start on New Scott Administration Bldg.

Work will begin immediately on Scott Paper Co.'s new corporate administration building adjacent to the Philadelphia International Airport in Tinicum Township following the formal signing of the general contract for construction.

It is planned that the building will be available for occupancy by the end of November 1960. Structural steel for the new building has already been erected.

William M. Carney, Scott vice president and chairman of the building committee, signed the contract on behalf of the company. Hughes-Foulkrod Co. of Philadelphia was the successful bidder, and its president, Henry S. Rogers, signed the contract for his firm. Other building committee members present at the occasion included Harrison F. Dunning, Scott vice president, and Roderick H. Sears, director of procurement for the company.

Basically, the contract calls for the construction of a main six-story building and for a three-story south wing. The entire structure, including the basement, will provide a total of about 230,000 square feet of floor space.

Final plans for the adjoining research center are moving ahead. It is anticipated that the contract for this building will be awarded so that the center can be completed by the time work on the administration building is finished.

Shirt Wearing Order Prompts Peavey Strike

Employes of the Peavey Paper Mills, Ladysmith, Wis., struck at 3 p.m. August 19 to remonstrate against a company order that they wear shirts while working.

Pat Krisik, president of Papermakers' Union Local 95, said the company posted an order during the weekend requiring men to wear shirts.

New CIP Machine is Joint Venture

Dominion Engineering Co. Ltd. and Beloit Iron Works are jointly building a paper machine of kraft paper and board at the Canadian International Paper Co. mill at La Tuque, Que.

Dominion and Beloit will each supply approximately 50 per cent of the component parts. The unit, which will have a 176-inch wire, will be 400 feet long. The machine has been designed for maximum flexibility in the production of bag and wrapping papers and also bleached foodboards. Annual production of the unit is estimated at 35,000 tons.

The 10,000,000 expansion program at La Tuque includes installation of a laminating machine to produce heavier bleached boards. The laminator, supplied by Black-Clawson (Canada) Ltd., Montreal, is a three-ply unit with a trim width of 86 inches.

Design work has been arranged with Durnford, Bolton, Chadwick & Ellwood, architects, and Foundation of Canada Engineering Corp., engineers. Foundation Co. of Canada, Ltd., Montreal, has been awarded the contract to build the machine room extension 940 feet long by 68 feet wide for the paper machine.

Present daily rated capacity of the mill is 530 tons of bleached and unbleached kraft pulps and 325 tons of kraft linerboard, kraft paper and bleached kraft board.

July '59 Newsprint Production Tops 1958

Production of newsprint in North America during July 1959 amounted to 684,980 tons and was 6.5 per cent above the July 1958 volume. Shipments totaled 703,509 tons in July 1959 and were 6.4 per cent greater than shipments in the corresponding month of 1958. According to the Newsprint Service Bureau, output in the United States reached the highest July level on record of 149,157 tons while shipments amounted to 156,462 tons, and respective gains over July 1958 amounted to 10.6 per cent and 13.6 per cent. Canadian production amounted to 535,823 tons and shipments totaled 547,047 tons, which represents increases from July 1958 of 5.4 per cent and 4.5 per cent respectively.

Production of newsprint paper in North America in the first seven months of 1959 amounted to 4,752,587 tons, which was 177,203 tons or 3.9 per cent above the level attained in the same period of 1958. Cumulative output of United States mills at the end of July 1959 totaled 1,127,679 tons—an all-time high for this period—and was 107,650 tons or 10.6 per cent more than the volume produced a year earlier. Canadian production amounted to 3,624,908 tons and was 69,553 tons or 2.0 per cent greater than in the first seven months of 1958.

North American manufacturers' stocks on July 31, 1959, aggregated 246,594 tons compared with 265,123 tons on the last day of the preceding month and 227,446 tons at the end of July 1958. The continental total was composed of 21,680 tons and 224,914 tons held by United States and Canadian mills respectively, and inventories were higher than a year ago by 3,058 tons in the former instance and by 16,090 tons in the latter.

PIMA President Assigns Div. Responsibilities

A. C. McCorry, St. Regis Paper Co., Tacoma, Wash., and president of Paper Industry Management Assn., recently announced assignment of division responsibilities of the five PIMA vice presidents. "Each of our association's vice presidents will assume, as established by my predecessors in office, supervision of two of the group's 10 divisions," he stated.

The assignments follow:

Tom S. Coldeway, St. Joe Paper Co., Port St. Joe, Fla., first vice president — Southern and Southeastern Divisions.

C. Ives Gehring, Sealright-Oswego Falls Corp., Fulton, N. Y., second vice president—Michigan and New York-Canadian Divisions.

Bemis P. Wood, Strathmore Paper Co., West Springfield, Mass., third vice president — Connecticut Valley and Northeastern Divisions.

Glen T. Renegar, Container Corp. of America, Philadelphia, Pa., fourth vice president—Miami Valley and Pennsylvania-New Jersey-Delaware Divisions.

Lawrence Murtfeldt, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., fifth vice president —Northwestern and Pacific Coast Divisions.

"The objects of these appointments," Mr. McCorry said, "are to promote closer relationship among the divisions and the National Association, to assist the divisions in planning their meetings, and to engender more active participation in the annual conventions of PIMA."

Paper and Board Production

According to the American Paper and Pulp Ass'n. the ratio of the United States production to mill capacity for the week ending August 15, 1959, was 93.8 per cent compared with 94.5 per cent revised for the preceding week. The ratio was 91.0 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending August 15, 1959, was 96 per cent compared with 98 per cent for the preceding week and 93 per cent for the corresponding week a year ago.

(Detailed statistics on page 50.)

Hoerner Financing For Joint Waldorf Expansion

Hoerner Boxes, Inc., Keokuk, Ia., filed with the Securities and Exchange Commission on August 19 a registration statement covering the proposed public sale in September of 236,500 shares of common stock.

Net proceeds from the shares being sold by the company, together with $2,500,000 from additional long-term borrowings, will be used to finance a $5,000,000 equity investment in and a $1,000,000 loan to Waldorf-Hoerner Paper Products Co., which will be 50 per cent owned by Hoerner. Waldorf-Hoerner plans to enlarge its pulp capacity and construct a paperboard machine at Missoula, Mont.

Hoerner Boxes, an outgrowth of Iowa Fiber Box Co., which was formed in 1920, manufactures corrugated container board and shipping cartons used in the packaging and shipping of a wide variety of merchandise, including food products, glassware, paper, machinery and furniture. Sales are made to more than 3,500 customers. Plants are situated at Keokuk, Des Moines, and Ottumwa, Ia.; Minneapolis, Minn.; Sands Springs, Okla.; Fort Worth; Little Rock and Fort Smith, Ark. and Sioux Falls, S. D. Plants are under construction at Tupelo, Miss., and Springfield, Mo.

PAPER PEOPLE

A. E. Van Wirt

Imperial Color Elects Van Wirt Exec. V-P

The Imperial Color Chemical & Paper Corp. announces the election of Alfred E. Van Wirt as executive vice president. Mr. Van Wirt is currently vice president and technical director.

Mr. Van Wirt is a native of Glens Falls, major location of the Imperial Corp. He attended Cornell University, graduating in 1923. After graduation, he was employed by the Allied Chemical Corp. in Philadelphia from 1923 to 1925. In the latter year, he returned to Glens Falls as a production staff assistant with Imperial. In 1930, he was assigned to administrative responsibilities in the wallpaper division. During his years in this division, Mr. Van Wirt developed a number of "firsts" in the wallpaper industry. Among these achievements was the introduction of light-fast and washable wallpapers.

In 1935, Mr. Van Wirt was named technical director in charge of all research laboratories, as well as engineering and technical operations. He was elected to the board of directors in 1946 and became vice president in 1953.

Riegel Names New Mgr. Packaging Materials Sales

Riegel Paper Corp. has announced the appointment of Norval W. Postweiler as manager of packaging materials sales. The position was formerly held by Charles Schaehrer, recently elected vice president and made sales manager of the Specialty Products Division. Mr. Postweiler joined Riegel in 1952 as a sales engineer and has been eastern sales manager for packaging materials sales since 1957.

C-Z Announces Appointments at Camas

Crown Zellerbach Corp. announces two appointments at its Camas, Wash., mill.

David Hartley, analytical and solutions chemist, has been made development chemical engineer.

Robert Gaps joins the Camas central research department as an assistant chemist. He is a 1959 graduate in chemistry from Lewis and Clark College.

Engineer Promotions At Sonoco Announced

Sonoco Products Co. has announced three promotions in the general engineering section of its Hartsville, S. C., mill. F. C. Chitty has been named assistant supervisor of this section and B. W. Collins and D. Yount have been promoted to the positions of general engineers from junior engineers. Mr. Chitty has been with Sonoco's engineering department since his release from the Armed Services in 1946. Messrs. Collins and Yount have both been with the company since 1957.

Scott Paper Promotes Lotter and Shumaker

William H. Lotter, Jr., formerly a project engineer in the engineering department, Scott Paper Co. Chester, Pa., has been promoted to the position of senior project engineer at the company's Mobile, Ala., plant.

Mr. Lotter joined Scott in 1956 as an engineer in the engineering department at the Chester plant and was made a project engineer in the paper mill design section of the engineering department at Chester.

Also announced is the promotion of Roy L. Shumaker to the position of paper mill engineer at the Marinette plant.

Mr. Shumaker joined Scott in July 1951 as an engineering trainee in the engineering department at the Chester plant, and in May 1952 he was made a project engineer in the paper mill design section of the engineering department at Chester. In June of 1955 was promoted to the position of senior project engineer in the Chester plant engineering department.

J. T. Allen

Crossett Opens New Sales Office in Atlanta

Crossett Paper Mills, Crossett, Ark., has opened a new sales office in Atlanta, Ga. John Twyman Allen, formerly located in Crossett's Cincinnati paper sales office, is in charge of the new outlet. Location of the office is 3127 Maple Drive, NE, Suite 210.

"The opening of this new office in Atlanta, one of America's fastest growing markets, gives us an opportunity to provide better service for our customers in the Southeast," said J. C. Mulholland, sales manager.

Mr. Allen's move to Atlanta completes the reorganization of the paper sales organization started earlier this summer when two new area sales managers were named. They were J. W. Taylor, eastern sales manager with offices in New York City, and Don Hodge, western sales manager, with offices in Chicago.

Mr. Allen has been associated with Crossett Paper Mills in a sales capacity since 1952. All of this time has been spent in Cincinnati.

Enouen Joins Mead As Assistant Comptroller

William A. Enouen has been named assistant to the comptroller of The Mead Corp. In his new position Mr. Enouen will work on corporate assignments in the broad financial field.

Mr. Enouen had been associated with Touche, Niven, Bailey & Smart for seven years.

Kalamazoo Paper Elects Causey a Director

James M. Causey has been elected by the Kalamazoo Paper Co. board of directors to membership on the board. The new director fills the vacancy created by the death of George T. Jubb.

Mr. Causey joined the Kalamazoo Paper Co. in 1937 in a sales capacity and in 1952 became vice president in charge of sales.

Also announced is the appointment of Norman P. Hahn as treasurer of the company. Mr. Hahn has been auditor and assistant office manager since 1954.

A. E. Bachmann

Bachmann Moves to Holyoke

Albert E. Bachmann, vice president in charge of paper manufacturing for the various divisions of Standard Packaging Corp., is moving his headquarters to Holyoke, Mass., in the offices of the Chemical Fine Paper & Board Div. of Standard Packaging Corp. there.

Controllers Re-elect McLaughlin Treasurer

Stuart W. McLaughlin, comptroller, West Virginia Pulp and Paper Co., New York, has been re-elected treasurer of the Controllers Institute Research Foundation (formerly Controllership Foundation, Inc.) His re-election, effective September 1, took place at a dinner meeting in the Westchester Country Club, Rye, N. Y.

Mr. McLaughlin was first elected treasurer in 1957, at which time he was appointed a trustee. National treasurer of the Institute since 1954, he has also served the parent body as national director and regional vice president.

Bestwall, Certain-Teed Cite Safety Director

Matt F. Fink, safety director of Bestwall Gypsum Co. and Certain-teed Products Corp., was cited by the companies this month for establishing a safety program which resulted in a more than 90 per cent drop in injury frequency during less than five years.

"Under his program," Malcolm Meyer, president of Certain-teed Products and vice president of Bestwall Gypsum, said, "our plant safety records show a steady decline in frequency and severity of man-hours lost due to injuries."

Mr. Meyer added that, in the four years Mr. Fink had been safety director of Bestwall Gypsum, its injury frequency rate has dropped from 7.46 per million man hours, in 1955, to 0.42 in the year ending December 31, 1958.

At Certain-teed Products, similar statistics show a drop from 11.80 in 1955 to 4.26 in the past year.

Mr. Meyer also gave Mr. Fink full credit for securing the National Safety Council's highest award, the "Award of Honor" for the Sigurd, Utah, plant in 1958. This was the first time that award was given to the gypsum industry.

Hart Joins Champion As Research Engineer

Thomas J. Hart has joined the Champion Paper and Fibre Co.'s research and development division in Hamilton, Ohio, as a research engineer.

Mr. Hart, of Versailles, Ohio, is a graduate of the University of Cincinnati with a degree in chemical engineering. While attending U. C. he worked with the Moraine Paper Co., West Carrolton, Ohio, as a paper tester and as a laboratory technician with Electric Auto-Lite, Sharonville, and the National Cash Register Co., Dayton.

Looking for a new position?

Looking for new personnel?

Keep your eye on our Classified Advertising Section

J. M. Tucker

New Gulf States Personnel To Make Bleached Board

James M. Tucker, former chief engineer at Gulf States Paper Corp.'s Tuscaloosa, Ala., mill has been made superintendent of the board mill operations due to start up there next month.

Foremen for the new board mill include: C. Darcey, a paper mill foreman from the company's Tuscaloosa plant; D. Bond, previous materials control director at Demopolis; Leo Youngchild, until recently at East Texas Pulp & Paper Co., Evadale, Tex., Loris W. Crow, who moved to Demopolis from Potlatch Forest Industries, Inc., Lewiston, Ida.; and Court Butler, a recent tour foreman at Container Corp., Brewton, Ala. plant.

James W. Maxwell recently moved to Demopolis from Potlatch Forest, Inc., to assume the position of coating engineer. James S. Busching, a former Weyerhauser Timber Co. Longview, Wash., employee, has the title of board engineer. New process evaluation engineer is William Welch who has recently been technical assistant to the general superintendent at Hamilton Paper Co., Miquon, Pa. Henry C. Coleman, process engineer at Demopolis, came from the Rayonier Inc., Fernandina, Fla., plant.

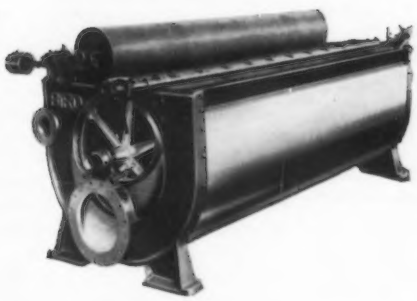
Gilman Paper Fills Newly Created Post

H. C. Lawless, vice president and director of sales for Gilman Paper Co. and its subsidiaries, St. Marys Kraft Corp. and Kraft Bag Corp., announces the appointment of H. D. Wellington to the newly created post of assistant general sales manager, with headquarters at 630 Fifth Avenue, New York. Mr. Wellington formerly was western sales manager, located in Gilman Paper Co.'s Chicago office, in the Daily News Buildings.

SAVED by BIRD SAVE-ALLS

$100,000 A DAY!

ARE *You* GETTING *Your* SHARE?



Bird Save-Alls are designed and built for only one purpose — to recover valuable stock from paper machine waste water at lowest cost per ton.

A Bird Save-All system costs least to buy, install, operate and maintain. Simple gravity is the separating force. A 2HP motor runs the Save-All for capacities up to 500 gpm; a 3HP motor for the big 750 gpm Save-All. There are no vacuum, chemical or storage expenses.

Ask us to figure how much stock and how many dollars the Bird Save-All can save you.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

BIRD MACHINE'S 50th YEAR OF SERVICE TO INDUSTRY

NEWS OF CONVERTERS

Downing Announces Three Executive Appointments

Downing Box Co., Milwaukee, has announced three executive appointments. Two are promotions in the company's Cedar Rapids, Iowa, division.

A Milwaukee native, Joseph A. Daggett has been named to the newly created post of assistant general manager of the Cedar Rapids division.

Mr. Daggett, who has been on the Downing staff for the past ten years, has been staff assistant to B. Philip Bowen, vice president and general manager at Cedar Rapids, for the last two years.

Raymond T. Folger was named plant manager at Cedar Rapids. He has been with the company 32 years and has been plant superintendent of the Milwaukee operation for the past four.

William Seymour, former plant manager of the Federal Container Corp. plant at Minneapolis and the Container Corp. of America's Fort Worth, Tex., plant, has been named to succeed Mr. Folger at the Downing Milwaukee plant.

Hoerner Boxes Names Thiem Vice President

Fred W. Thiem, has been named vice president of production for Hoerner Boxes, Inc., Keokuk, Ia.

A 27-year Hoerner veteran, Mr. Thiem was first in charge of the maintenance department at the Keokuk plant. In 1941 he was named superintendent of maintenance; and since July 1953 has served as general production manager.

McGovern Joins Chippewa

James McGovern has been appointed special project development engineer by Chippewa Paper Products Co., Inc., Chicago, Ill. Mr. McGovern comes to the company with many years' experience in industrial engineering. He will be in charge of development and manufacture of new corrugated specialties being pioneered by Chippewa Paper Products Co. His office and laboratory will be in the Chicago plant.

Judson Mealy

Hinde & Dauch Names Mealy Regional Production Mgr.

Appointment of Judson Mealy as a regional production manager for the Hinde & Dauch Division of West Virginia Pulp and Paper Co. has been announced.

In his new post Mr. Mealy will be in charge of production of the H&D plants located at Cleveland, Detroit, Eaton, Ohio, and Sandusky. Hinde & Dauch operates 15 plants throughout the East, South and Midwest.

Prior to joining H&D Mr. Mealy was plant production manager for a leading paper converter in the New York area. He received his B. S. degree in chemistry at Brown University and obtained his M. S. degree in chemical engineering from Massachusetts Institute of Technology.

I-P Single Service Div. To Build Mass. Plant

International Paper Co.'s Single Service Division has announced plans to build a plant to manufacture Pure-Pak paper milk containers at Framingham, Mass.

C. S. Edgar, division general manager, said a six-acre site has been acquired for the 50,000-square-foot structure from Cerel-Perini Associates, Inc., in the Framingham Industrial Center. Construction of the modern single-story building will begin this fall with completion scheduled for spring, 1960.

The new plant will be located on the Massachusetts Turnpike about seven miles northwest of Framingham. Mr. Edgar said the facility is being built to provide better service to the New England dairy industry and will have a rated capacity of approximately 35,000,000 paper milk containers monthly.

The Framingham plant will be the fourteenth to be operated by the Single Service Division. Other plants are located at Kalamazoo, Mich.; Philadelphia, Pa.; Bastrop, La.; Kansas City, Kan.; Atlanta, Ga.; Youngstown, Ohio; Pelham, N. Y.; Waco, Tex.; Minneapolis, Minn.; Turlock, Cal.; Raleigh, N. C.; Miami Beach, Fla.; and Versailles, Ky.

New Ohio Fome-Cor Plant Begins Production

The Fome-Cor Corp.'s new plant at Addyston, Ohio, began full-scale production of Fome-Cor board early in August.

Fome-Cor is a lightweight foamed plastic and paper sandwich material which has good cushioning and insulation properties as well as high compression strength when wet. It is being used widely for specialty containers, displays and other applications.

The new plant, which utilizes a continuous process, turns out Fome-Cor in panels up to 72 inches wide and in several thicknesses and densities. The company, formed earlier this year by St. Regis Paper Co. and Monsanto Chemical Co., also operates a semi-commercial plant at Mt. Wolf, Pa.

Houston Paper to Expand Folding Carton Plant

The Houston Paper Co., Houston, Tex., has charted a major expansion at its local plant, 4902 Gulf Freeway, Harry Maltz, board chairman, has announced.

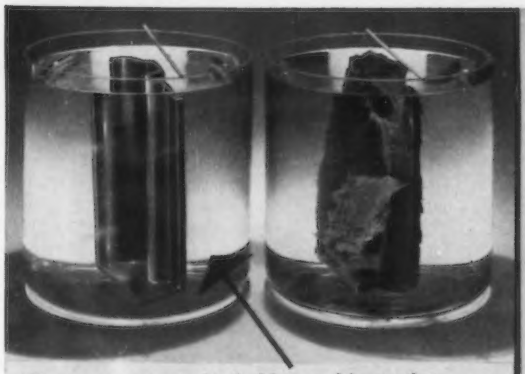
Mr. Maltz said installation of approximately $200,000 of additional folding carton production equipment will begin immediately at the plant.

Offset lithographic printing equipment, a machine to apply transparent windows to cartons and a die-cutting machine capable of producing 4000 sheets per hour is included in the new installation.

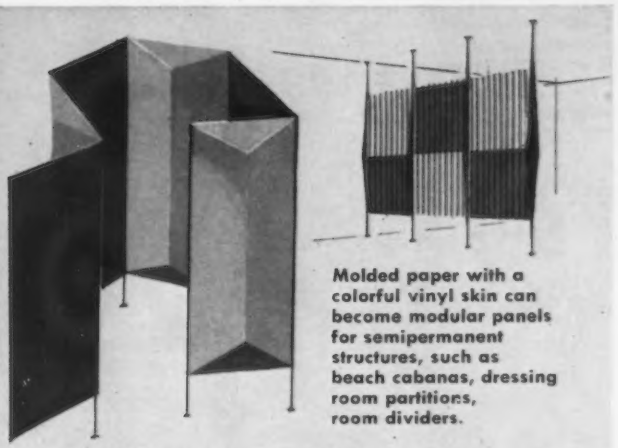
Fibreboard Names Div. Sales Manager At Seattle

Fibreboard Paper Products Corp. announces the appointment of a new sales manager for its Seattle-based Northern packaging division. H. C. Hamlin, Jr., will succeed C. A. Mor-

A NEW WAY TO UPGRADE YOUR PRODUCTS: VINYL COATINGS



The transparent vinyl skin on this section of a pulp-molded shipping tray makes it impervious to water.



Molded paper with a colorful vinyl skin can become modular panels for semipermanent structures, such as beach cabanas, dressing room partitions, room dividers.

Weatherproof covered pallets of paper pulp can withstand weather—could multiply warehouse space.

Vinyl-coated pulp-molded covers can make shipping containers that permit flat car shipping, and outside storage.

Colorful, leather-y coatings for molded paper

Vinyl coatings can help you develop new products made of molded paper with its attendant advantages of low-cost tooling. You can turn molded paper pulp into an altogether new material with a single spray or dip coating.

The vinyl dispersion transforms molded paper pulp into a smooth, brightly colored weatherproof, waterproof material. A "skin" up to 60 mils thick can be put over a molded paper product and heat-cured quickly into a permanent, abrasion resistant, leathery-tough film.

You can make the coating soft and rubbery or as hard as a tire casing. The vinyl coating can be glossy, satin-y, or dull; the characteristics of the skin, like the choice of color, are determined by the formulation of the dispersion.

Write for sources of vinyl in liquid form for coating paper—or sheet metal, glass, or products of wire or expanded steel. You can open new markets with new products.

Organic Chemicals Division
MONSANTO CHEMICAL COMPANY
Dept. SP-6, St. Louis 66, Missouri

Monsanto manufactures a wide variety of plasticizers and Opalon® resins for formulators of these high-quality vinyl dispersions.

Monsanto®

Where Creative Chemistry Works Wonders for You

gan, who is retiring after nearly 40 years with Fibreboard.

Mr. Hamlin's career in Fibreboard sales management started immediately after his World War II service as a bomber pilot in the U.S. Air Corps. His wide experience in marketing Fibreboard Paper packaging products includes sales representation in Los Angeles, San Jose, and merchandising management at the San Francisco headquarters.

Reduced Variety in Notion and Hat Bags Proposed

Paper bag manufacturers are considering reductions in the variety of notion and millinery bags, according to the Commodity Standards Division of the U. S. Department of Commerce. Fourteen sizes in place of the present 22 are covered in a recommended revision of Simplified Practice Recommendation R129-41, Notion and Millinery Paper Bags, which is being circulated to producers, distributers, and others for approval.

The revision was requested by the Paper Bag Institute, Inc., to bring the Recommendation in line with preferred current usage. Changes in basic weight of paper stock are included together with a change in number of sheets for computing basis weight, the deletion of 11 sizes and the addition of three new sizes of bags that are in general use by the trade. The title of the Recommendation is also changed.

Copies of the recommended revision are available from C. G. Hemmer, Commodity Standards Division, U. S. Department of Commerce, Washington 25, D. C.

Brown To Construct Bermico Plant in Ontario

Extension of the chain of Bermico pipe and conduit manufacturing plants into Canada was announced by A. E. H. Fair, president of Brown Co. Brown has fiber pipe plants in Berlin, N. H., and Corvallis, Ore., and is presently building an additional facility in Birmingham, Ala.

Construction of the new fiber pipe plant at Hamilton, Ontario, will commence in the near future. The new plant will be a cooperative undertaking between Brown Co. and Building Products Ltd. of Canada, one of Canada's largest manufacturers and distributors of building materials.

The subsidiary corporation, known as Bermico Products Ltd., will operate the Hamilton plant and will use the facilities and sales organization of Building Products Ltd.

Paper Wins Six of Ten Best Packages in Nation

Paper won six of the top ten positions for the best packages in America's markets according to an independent major survey.

As a result of the most penetrating poll ever taken of American consumer preferences, the Better Packaging Advisory Council came up today with the top packages as chosen by 249,222 customers while they were actually in the process of shopping.

Here are the "best ten," listed alphabetically by product name and specifying the type of packaging the consumer chose:

1. Ajax cleansing compound. Fiber can.
2. Betty Crocker refrigerated biscuits. Fiber can.
3. Coca-Cola soft drink. Glass.
4. Dial shampoo. Plastic.
5. Kent cigarette. Paper box.
6. Kleenex facial tissue. Folding box.
7. Miller's High Life beer. Metal.
8. Playtex girdles. Fiber tube.
9. Satin-Set pin curl spray. Metal aerosol.
10. Schick electric shaver. Paper box.

Materials of construction for the top ten above were: plastic — one, glass — one, metal — two, and paper (board) — six.

Container Corp. Names Ohio Valley Sales Mgr.

The appointment of Edwin A. Guerrero as Ohio Valley sales manager for folding cartons is announced by H. G. Van der Eb, vice president, Container Corp. of America.

In his new post, Mr. Guerrero will continue in his present assignment as special account representative for the Cincinnati area and, in addition, will be affiliated with the company's Solon, Ohio, folding carton organization for the development of the Ohio Valley market.

A graduate of Lake Forest College, Illinois, Mr. Guerrero joined Container Corp. in 1943 at the company's 35th Street folding carton plant, Chicago. He served there successively as packaging engineer, assistant sales manager of dry cartons, sales manager and, in 1957 was named administrative sales manager for dry cartons of the Chicago carton organization. In 1958, he was transferred to the Cincinnati office as special account representative for the area. He will continue to make his headquarters in Cincinnati.

Fibre Box Ass'n. Re-elects Dufrechou

A. W. Dufrechou, vice president, sales, Kohlmann Box Co., Inc., New Orleans, La., has been re-elected a director of Fibre Box Ass'n.

A native of New Orleans, Mr. Dufrechou entered the shipping container field in 1950 with Krafco Container Corp. of Dallas, Tex. He joined his present firm in 1957.

Rourke-Eno Paper Co., Elects Vice Presidents

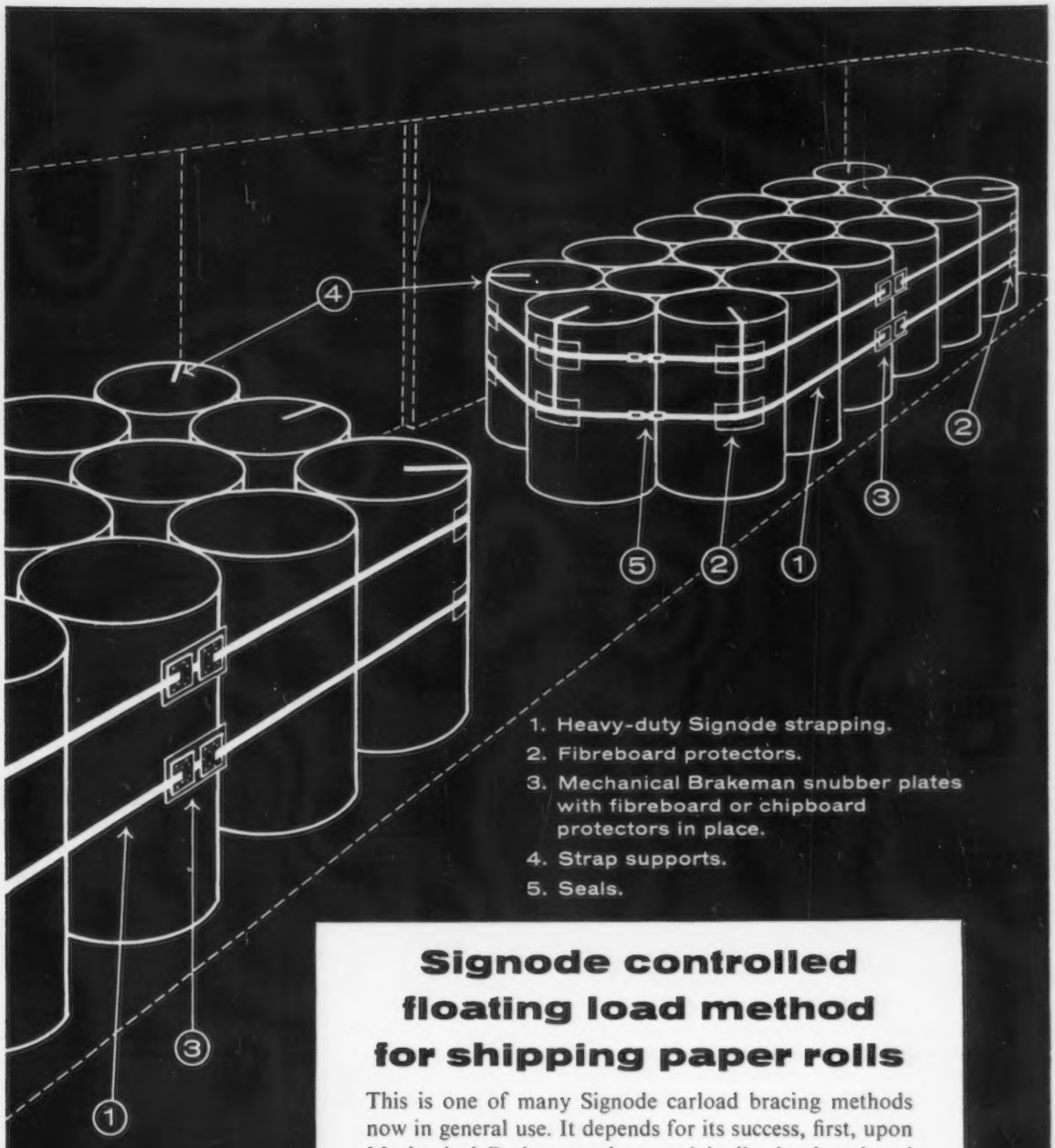
The election of Daniel F. Conley and W. Ralph Muth as vice presidents of the Rourke-Eno Paper Co., Inc., Springfield, Mass. has been announced.

Mr. Conley, who has managed the Springfield branch of the company since its establishment in 1950, joined the sales department of Rourke-Eno in 1931, and is well known in the graphic arts industries throughout New England.

He is a member of the Connecticut Valley Litho Club, the Springfield Club of Printing House Craftsmen, Advertising Club of Springfield, Boston Paper Trade Association and the New England Paper Merchants Association.

Mr. Muth joined the company in 1951. He attended Miami University in Oxford, Ohio, and was a salesman for Minnesota Mining and Manufacturing Co. before joining Rourke-Eno as manager of industrial paper sales.

The Rourke-Eno Paper Co., established in 1847, is one of the largest distributors of printing and industrial papers in New England. It operates sales offices and warehouses in Springfield, Hartford, New Haven, Bridgeport and Providence.



1. Heavy-duty Signode strapping.
2. Fibreboard protectors.
3. Mechanical Brakeman snubber plates with fibreboard or chipboard protectors in place.
4. Strap supports.
5. Seals.

Signode controlled floating load method for shipping paper rolls

This is one of many Signode carload bracing methods now in general use. It depends for its success, first, upon Mechanical Brakeman plates, originally developed and patented by Signode, and secondly, upon many details such as placement of straps and plates about which your Signode representative can advise you. For expert assistance in damage free shipment of paper, consult a Signode paper specialist.

SIGNODE

First in steel strapping

SIGNODE STEEL STRAPPING CO.

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Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
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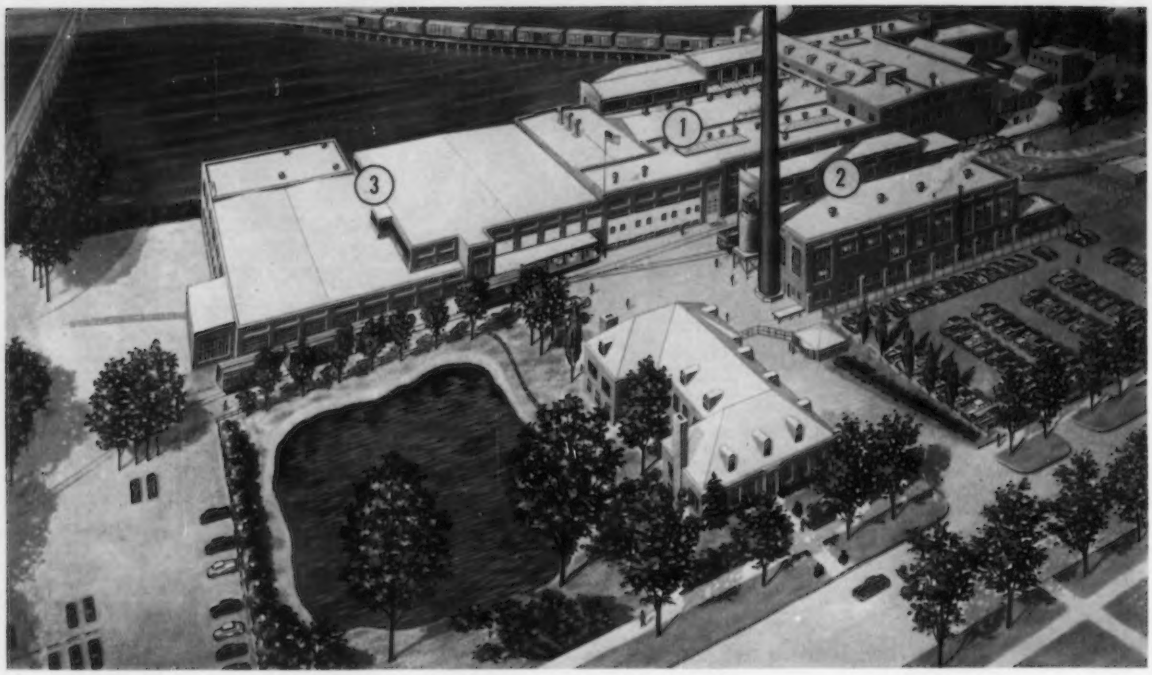


Flexible No. 2 Begins Production at Gilbert Paper Co.

This new paper machine is one of the few built entirely by Valley Iron Works. One of its high points is the installation of four Gardner high-velocity air dryers

Gilbert Paper Co. completed a major portion of a modernization and expansion program when production runs began July 18th on this Menasha, Wis., concern's new No. 2 paper machine. One of the few built entirely by Valley Iron Works of Appleton, Wis., the fully instrumented installation incorporates the latest equipment for maximum flexibility from the slice to the reel in trimming a 97-inch wide sheet at 1000 f.p.m. New No. 2 is intended to produce a wide range of rag content papers — 25 to 100 per cent cotton fiber—in 9 to 81 lb. reams (17 x 22-500), encompassing bond, index, ledger, drawing, currency, manuscript, cover, tracing and specialty grades.

Another project was the renovation of a present unit and the installation of additional units in the power plant. Extension of paper finishing facilities, which has just started, will windup the present program.

One of Three

The new machine replaces an orinal — circa 1892 — 100-inch wire width, 86-inch trim Bagley & Sewall fourdrinier. Dismanting of the old required a mere 22 hours, and installation of the new in its place was started June 16, making use of the existing building with minor modifications (position "1" on photo of mill). The 107-inch wide No. 2—that is, the new one—is designed for 30 per cent greater capacity than its predecessor, and is the middle man of a three-machine line; No. 1 being an 86-inch wide, 72-inch trim fourdrinier, and No. 3 being a 120-inch wide, 105-inch trim Rice Barton and Fales fourdrinier.

Major stock preparation equipment includes four 100-lb. capacity Jones beaters, two 1500-lb. capacity Jones-Bertram beaters, one 1500-lb. Jones breaker beater, three Morden refiners, five jordans, three Bird rotary screens, and ten washers. A rag pulp mill produces about 19 tons per day.

On to the Presses

In the new machine's system, stock passes through a three-stage Bauer cleaner system and Shartle Bros. Selectifier screens before it passes into the Stock Entrance equipment and out through the Valley fully-adjustable pressure inlet onto the wire. Although of standard headbox appearance, the baffles of the Stock

Entrance equipment, as it is referred to by Valley, have been slightly modified to meet Gilbert's requirements.

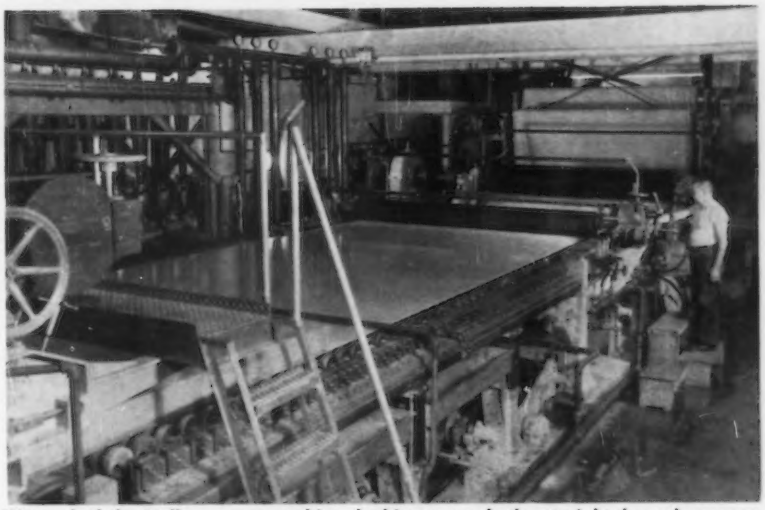
The fourdrinier is of the stationary type and has a 64-foot wire. Principal components include suction boxes, dandy roll, and a suction couch.

Gilbert employs a straight-through press section with a suction first press, a plain reversing second press, followed by a smoothing press. Dual Vickeries condition each felt.

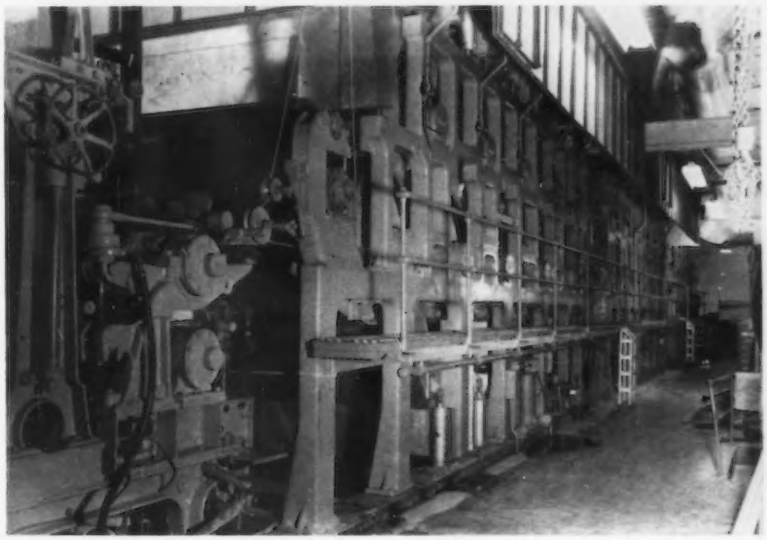
Drying and Winding

The 29-dryer section is split into three divisions with two intermediate steps. First are thirteen 48-inch diameter dryers. Then a horizontal braker stack consisting of two horizontal rolls calenders the damp sheet. The second dryer division contains ten 48-inch diameter dryers, followed by a Valley horizontal size press that applies glue or starch sizing to the sheet. Size application is automatically controlled by Foxboro instruments. There are six more 48-inch dryers before the sheet passes into a five-roll calender stack. The dryer-section's hood is Gilbert-designed, and is constructed of Transite. Three high-volume turbine blowers exhaust air from the hood.

To increase drying capacity, Gilbert has installed four Gardner high velocity dryers. One is mounted on the first top dryer roll and the second is installed on the second bottom dryer roll in the initial dryer division. The next pair immediately follow the size press; one is mounted on the top first roll, and the fourth is located on the first bottom roll of the third dryer division. Each Gardner is equipped with automatic



Wet-end of the Valley paper machine, looking towards the straight-through presses. No. 2 trims a 97-inch sheet and is capable of 1000-f.p.m. speeds.



▲ General view of the dryers. Smoothing press is at left. Gardner dryers can be seen mounted on the first top dryer roll and the second bottom dryer roll.

◄ The Valley horizontal size press is situated between the second and third dryer divisions. Either glue or starch size may be applied to the sheet.

temperature control and employs indirect hot air at 100 p.s.i. as the drying medium. It is estimated that one Gardner dryer has the equivalent capacity of four normal dryers.

Two Foxboro automatic controllers are mounted in the dryer section and tie in with a Ross Midwest Fulton drainage system to provide moisture control of the sheet. One controller is situated in the second dryer section immediately prior to the size press, and the second is located in the after-dryers of the size press. In addition, an original Tracerlab beta-ray gauge measures the basis weight of the sheet.

A Valley horizontal-track, surface-wind reel completes the machine. Hydraulically-operated and completely instrumented, the reel has provision for the eventual addition of center wind components.

Drives and Bearings

A Dynamatic drive installed on the new machine electronically controls the machine's speed from a range of 50 f.p.m. to 1000 f.p.m. Non-stretchable Extremultus nylon-leather belts connect the drive with the single line shaft equipped with automatic belt shifters.

To meet the increased power requirements of the new machine, a new generator and boiler were installed, and an existing boiler was reconditioned. The generator, a Westinghouse turbine, upped k.w.h. output from 2500 to 3500. Steam at 650 p.s.i. at the rate of 70,000 lbs. per hour can be provided by the new oil-fired Wickes boiler, but at present, only 250 p.s.i. steam is required. Three existing boilers produce 250-lb. pressure steam at the rate of 30,000 lbs. per hour.

Anti-friction bearings are used throughout the machine and they are lubricated by a Bowser forced-feed system. Provision has been included whereby the dirt and water is filtered from the lubricant before it is recirculated through the system.

Finishing

Because of Gilbert's diversified line of papers, its finishing operations are quite complex. Principal equipment for this area are comprised of three supercalendars which handle up to 50-inch sheets, three air-drying machines, one jumbo 120-inch cutter and five smaller 55-inch cutters, and four sheet sorters. In addition there are two, highly-flexible converting lines; one is led by an existing 75-inch Seybold trimmer, and the second is led by a newly-installed 85-inch Harris-Seybold automatic guillotine trimmer. Reams of paper may be shipped on skids, sealed in cartons, or wrapped. Operating in conjunction with the converting lines is a Hayssen automatic ream wrapper that is capable of processing 24 units per hour.

Enlarged finishing facilities are being provided for the new machine with the construction of a $100,000 two-story building to the north of the present building (Area "3" in the lead-off photo.) The proposed 72-foot by 146-foot addition will increase said space by 50 per cent, with the second floor destined for finishing operations and with the basement to be used for paper storage.

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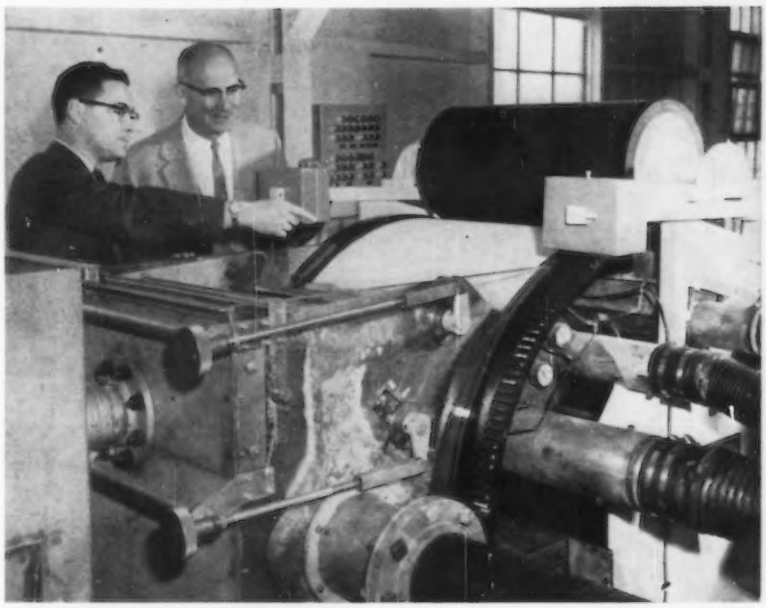
Dewey and Almy Builds 'Polyfibron' Pilot Plant

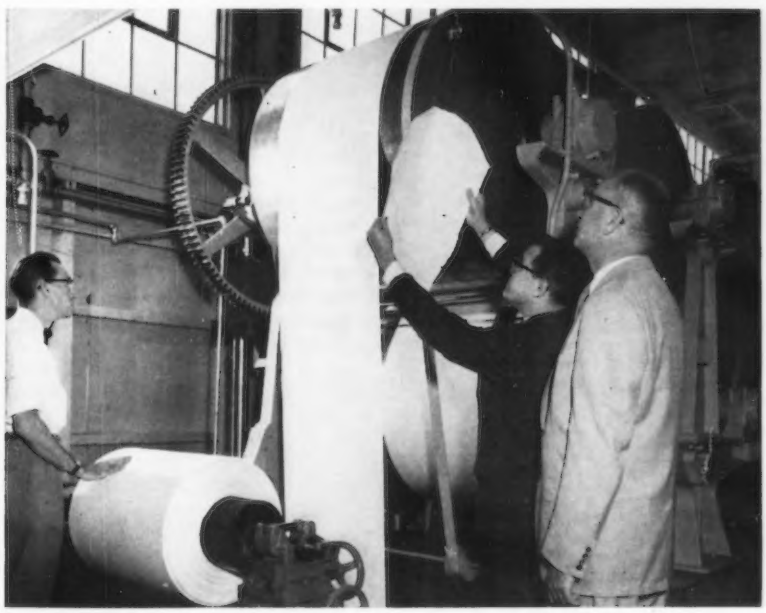
A new laboratory with fully integrated pilot scale facilities for making, impregnating, and coating papers is nearing completion at the Cambridge, Mass., headquarters of the Dewey and Almy Chemical Division, W. R. Grace & Co.

Already in use by researchers is most of the planned equipment for: (1) pulp treatment; paper forming, drying, and calendering; (2) impregnation by beater addition, wet saturation, and dry saturation; and (3) the application, drying and testing of paper coatings.

The name "Polyfibron" (polymers-fibers) is used by the company to describe Dewey and Almy's combination of experience and skills in two technologies, the knowledge of polymers and of the fibers in formed webs which are impregnated and coated with certain of these polymers.

The pilot laboratory is expected to accelerate Dewey and Almy's improvement of its existing impregnated fiber products and its explorations into new fields, said Mr. Haden. Existing products include insoles; welting; and sock lining, heel pad, and counter materials for the shoe industry; plumper materials to increase firmness of leather and fabric accessories; coating bases for manufacture of artificial leather and other finishes; and automotive battery separators inserted between the plates of lead-acid storage batteries.





▲ In the new Dewey and Almy Polyfibron laboratory, Rotoformer paper machine is discussed by Ralph L. Wentworth, left, Polyfibron research manager, and W. Campbell Ross, manager of the printing products laboratory.

◄ Messrs. Wentworth (holding sheet) and Ross examine sheet made in new laboratory. Calender stack was installed here since picture was taken.

In addition to impregnation equipment, the laboratory also contains complete pilot equipment for paper coating studies in the research of butadiene styrene, polyvinyl acetate and other emulsions used as paper coating binders. The laboratory's paper coater is equipped for roll, trailing blade, and air knife coating, and dryer. A controlled humidity testing room containing a Vandercook proof press "and other testing apparatus is provided for checking the coated paper.

Before installation of the new equipment, experimental papers were already being formed on a pilot scale Rotoformer paper machine trimming 27 inches, but drying, finishing, and impregnating were still conducted on bench scale equipment. Paper coating pilot runs were formerly made at the University of Maine.

Facilities in the new laboratory, a remodeled and enlarged building in Dewey and Almy's main laboratory area, are arranged in a flexible two-story layout to accommodate a wide range of research projects. A special feature is the use of a Varidyne alternator to supply current to synchronized motors on the paper-making line. The motors can be individually varied from the base speed to compensate for shrinkage of the sheet as it passes down the line.

The new paper mill at North Hykeham is of very modern design.

New British Paper Mill Specially Built to Make Latex Treated Papers

Opened earlier this year, the new mill of Jointine Products Co., Ltd., at North Hykeham, near Lincoln, England, houses papermaking equipment claimed to be the first to be specially designed for the production of rubberized and similar technical papers by beater addition.

The products made at the new plant are treated papers for use in book coverings, boot and shoe manufacture cases, industrial tapes and jointing materials. The basic process in each case consists of the formation of a base material followed by finishing operations. The base material can be made either by the impregnation of an already formed sheet with resins or rubber-like substances (impregnation) or by the incorporation of these substances during stock preparation (beater addition).

When the plans for the new plant were being drawn up, the company's experience was limited to the impregnation process. However, developments in the United States had confirmed the large possibilities of the beater process and a pilot plant was set up in the company's laboratories to investigate the process. After two years' development work sufficient information was available on the process to enable the company to decide to install a suitable mill.

The type of machine necessary is materially different from those normally associated with papermaking. Firstly, because of the high cost of raw materials the speed of operation is not such an important factor as quality and freedom from waste. The high cost of waste is increased by the difficulties of re-pulping. Secondly, there is a great danger, when handling rubber latices, of causing contamination of parts of the machine with rubber, and precautions have to be taken against this. Thirdly, the machine has to be versatile and capable of making material from the very thinnest up to something of the order of 1/16th in. thick, the bulk of the business being in the latter area.

New Paper Machine

A cylinder machine was ruled out and an 80-inch fourdrinier has been installed which meets all these requirements. The machine is comparatively slow moving, compared with most modern paper machinery, having a speed range of 5 to 50 feet per minute. Width was limited to 80 inches because it was considered that wide machines handling these expensive materials could lead to considerable waste. Since most materials were required in a 36 to 54 in. width range it was decided to install a machine capable of producing these widths.

The paper machine is complete with calender and stock preparation equipment. The machine drive is hydraulic allowing close control of speed between sections, which enables the percentage draw to be accurately fixed and gives smooth control of overall speed variation. Synchronization between sections is obtained by metering pumps which control the oil flow to the section drive motor.

Ten drying cylinders, with a drying capacity of about 750 pounds of material per hour, are incorporated. A high percentage of white water is recirculated in order to save the expensive resins and minimize disposal problems. Separate re-reeling and slitting units are installed

Stock preparation equipment consists of three beaters, each with a capacity of 250 pounds of dry pulp, together with stock chests and two reaction tanks (shortly to be increased to four). In these reaction tanks the pulp is treated with rubbers and resins.

Separate Impregnation

A 96-inch-wide coating and impregnating machine for use on both solvent and aqueous processes has also been installed. Overall dimensions of the machine are 100 feet long by 14 feet wide, with three drying tunnels each 70 feet long. The

drive is hydraulic giving an overall speed variation of 10 to 100 feet per minute, with facilities for fine adjustment of speeds between sections. Forced circulation hot air from three fans and steam operated batteries is used for drying.

There is a central bay for the preparation and storage of aqueous mixes and dispersions ready for use on the 96 in. impregnating plant or the paper machine. Additional mixing facilities will be provided at a later date. There is also a special mixing bay in the flameproof area for the preparation of mixes in inflammable solvents.

Further equipment new installed includes: a 54-inch-wide, double-sided embossing plant; laminating plant for combining impregnated papers to make up to ¼ inch thick; a fully automatic oil-fired boiler installation with a capacity of 7,000 pound steam per hour at 150-p.s.i. pressure; and a fully equipped laboratory for routine control and testing.

The solvent recovery plant, part of which has already been installed, is claimed to be capable of dealing with all types of solvents with a high degree of efficiency. It can be controlled either manually or automatically on a time cycle basis. Automatic control of processes has been introduced wherever possible and plans have been made for the automatic making of mixes and their supply to machines at a predetermined rate. The various operations involved in the recovery of inflammable solvents are controlled by electronic equipment.

More Equipment to Come

Over the next few months more equipment will be erected or transferred from the company's older factory in Lincoln. This will include a 60-inch-wide impregnating and coating machine of the same type as the 96-inch machine already installed, and a 42-inch-wide impregnating plant incorporating festoon drying to be installed in a separate building.

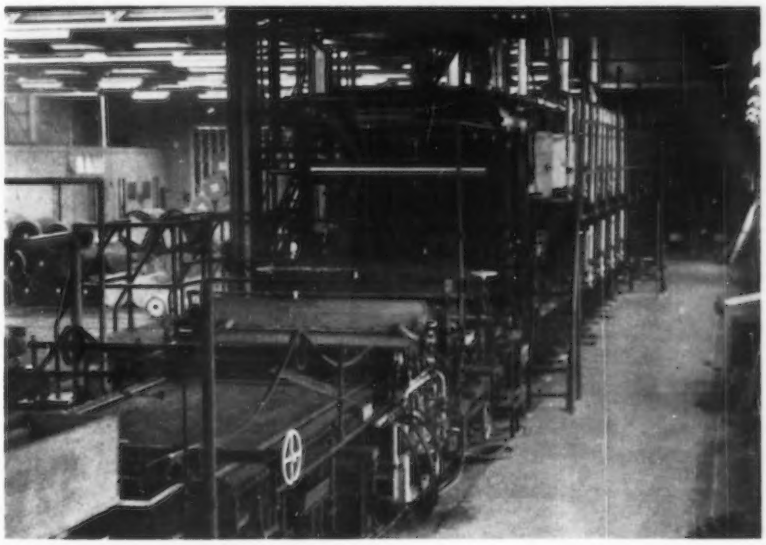
Other equipment still to come includes: a 60-inch-wide coating plant for either solvent or aqueous coating; a 48-inch-wide calender and a 60-inch-wide calender; a 60-inch slitting machine; a sheeting machine; an oil impregnating machine; a trimming machine; re-reeler and printing unit; and a boiler with a capacity of 4,000 pounds of steam per hour at 80-p.s.i. pressure.

Short History of the Company

Jointine Products Co. began in 1929 with small premises in Lincoln. The first product, and one which is still manufactured in large quantities, was soft compressible fiber jointing, selling to gasket cutters and to the motor and engineering industries generally. Under the control of James Dundas, the founder, the company grew steadily and in 1938 moved to larger premises in Tanners Lane, Lincoln.

During the war there was an increased demand for the company's main production lines, soft jointing materials used in the aircraft and motor industries. This meant that development of new products was retarded.

Trials on the new plant began in June 1958 and very few troubles were encountered. By the beginning of 1959 production was flowing regularly from the new factory although the whole of the production processes had not yet been transferred from Tanners Lane.



Paper machine for beater addition process. This is an 80-inch fourdrinier machine complete with calender and with pulp preparation equipment.

Impregnating and coating machine. For use on both solvent and aqueous processes, the machine is 96 inches wide and has a speed variation of between 10 and 100 feet per minute.

New Modified Cotton Linter Pulp Shows Interesting Properties

New markets for paper products seem a likely possibility with this new fiber due to its contribution of absorbency, porosity, bulk and softness to papers of many types.

A unique new fiber with extremely interesting properties has just joined Hercules Powder Co.'s array of cotton linter pulps for the paper industry. (The company makes about ten general types plus tailor making several others for special purposes.) The new pulp, a modified cotton linter type called SFP by the manufacturer, is made specifically for use in absorbent and porous papers and has been thoroughly proven in commercial production. It contributes softness, bulk, and uniform sheet formation to special papers of many types—filter, blotting, and industrial and other absorbent papers. As a furnish it makes possible combinations of sheet weight, caliper, porosity, and absorbency which have been very difficult to attain using other furnishes. Further, it yields a free-draining sheet with highly uniform formation at extremely low refining power input.

TABLE I
SHEET FORMATION AND POROSITY

Pulp	Refining	Formation	Air Flow c.f.m./ft.^{2} 0.5" H_2O
SFP	None	Excellent	150
	2 minutes	Excellent	140
Regular linters	2 minutes	poor	50
Kraft pulp	2 minutes	poor	10
80/20			
SFP/kraft	2 minutes	fair	80
Mercerized linters	2 minutes	poor	90

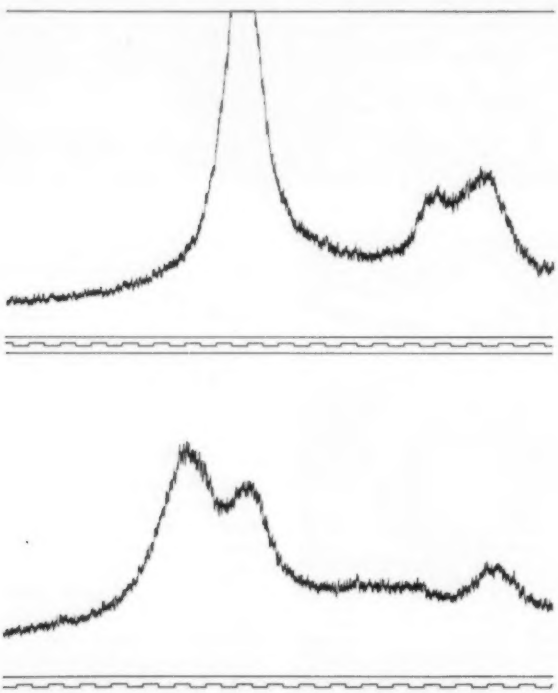


Figure 1. Crystallinity of fibers as revealed by x-ray diffraction charts. Top, trace from cotton linters, essentially 99+ per cent pure alpha cellulose. Bottom, trace from SFP fibers.

X-Ray Shows Difference

SFP is made by a special process which does not change the essential chemical nature of the cellulose, yet radically alters the crystalline structure of the fibers themselves. This change cannot be found by chemical analysis, but can be detected by physical methods. The resultant modified crystallinity is shown in Figure 1, where the x-ray diffraction patterns of untreated cotton linters and SFP are charted for comparison. In appearance the new pulp is similar to purified cotton linters, although much softer and fluffier. It is supplied in sheet form, packaged in bales, and has the following typical characteristics: caliper, 0.055 inches; density, 0.32 grams per cubic centimeter; moisture, 10 per cent; bale weight, 250 lbs.

Useful in Blends

The properties of a sheet made using 100 per cent SFP without any refining show interesting possibilities. Such a sheet is soft and supple, with a hand and drape almost like a textile.

The effects that could be produced with a plastic or latex coating

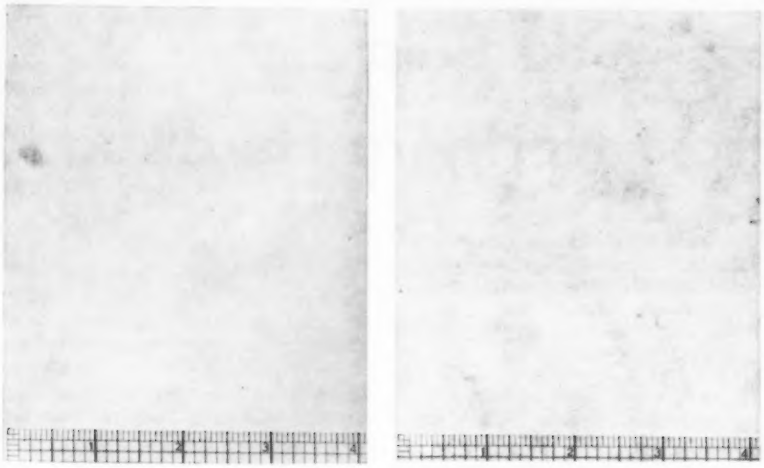


Figure 2. Comparative sheet formation with SFP sheet on left and kraft sheet on right. Photos illustrate the difference between excellent and poor formation as reported in Table I.

suggest new markets for paper products.

SFP is also useful as a blending fiber. It can be added, with a minimum of refining, for final close control of critical paper properties. As might be expected from a fiber that is resistant to hydration by beating, the physical strength of sheets made from 100 per cent SFP is somewhat low. In absorbent uses, the final sheet strength is often controlled by resin or latex treatments. However, in those uses where strength is of more importance, SFP can be blended with small proportions of a high-strength furnish such as HXV-20 fiber, and adequate higher strengths can be achieved without sacrificing the desired absorbency and porosity.

HXV-20 is Hercules' designation for a chemically modified cotton linter pulp which the firm developed specifically for use in producing high-strength fine papers (See PAPER TRADE JOURNAL November 25, 1957). It is one of two grades of HXV fibers manufactured by Hercules and is recommended as a replacement for medium-priced rags and first-cut linters. The other grade HXV-25, is recommended where even higher strength is desired.

Comparison With Other Pulps

Performance advantages of SFP can be visualized by comparison with equivalent sheets made with regular linters, kraft pulp, conventional mercerized linters and 80/20 SFP/kraft blend. Table I details sheet formation and porosity which is measured on a small sample and calculated to give the cubic feet per minute of air that will pass through a square foot of the sheet at 0.5 inches (water) pressure drop. It will be seen that the SFP fiber performs as well with no refining (simple slush addition) as with the two-minute beating given the other pulps. Sheet formation in either case is excellent. Porosity, as indicated by air flow measurements, is almost twice as great as with any of the other pulps, and some 15 times better than that obtainable with kraft pulp. The air flow through the 80/20 SFP/kraft blend shows how SFP as a blending fiber can be used to modify and improve other furnishes. Basis weight for the sheets being compared was 65 lbs. (24 x 36-500). A Valley beater with a four kilogram load was used in refining the various furnishes.

Table II shows the extra bulking effect of SFP in terms of the lower density of the sheet produced. Absorbency of the SFP sheet is almost triple that of any of the other pulps. Again, its contribution in the blend with kraft pulp is obvious.

TABLE II
ABSORBENCY AND BULK

Pulp	Refining	Density g./cc.	Absorbency S No.*
SFP	None	0.19	90
	2 minutes	0.19	90
Regular Linters	2 minutes	0.24	27
Kraft Pulp	2 minutes	0.35	14

*S No. or sorption number is the average rate of vertical rise of water, expressed as millimeters per minute, in a 4½ inch long strip of pulp mounted vertically as it is dipped in water.

Table III, which gives the comparative figures on liquid flow through the SFP sheet and the equivalent cotton linters sheet, illustrates another facet of the absorbency/porosity effect. As indicated, the flow of water is almost twice as fast through the SFP sheet as through the cotton linters sheet.

Although the physical strength of sheets made with SFP is somewhat low, this is generally not a serious drawback in absorbent uses where the strength of the final product is controlled principally by resin or latex treatments. Where strength is of importance, SFP can be effectively blended to higher strength without losing its other advantageous properties as indicated by the data in Table IV.

TABLE III
LIQUID POROSITY—WATER

Pulp	Refining	Liquid Flow sec./100 ml.
SFP	None	22
	2 minutes	22
Regular Linters	2 minutes	38

TABLE IV
STRENGTH AND POROSITY OF PULP BLENDS

Designation	Tensile	Porosity c.f.m.
Control of 100% SFP	0.9	144
80% SFP and 20% HXV-20	1.7	131
95% SFP and 5% wood pulp	1.5	107
80% SFP and 20% Hercules cotton linters	1.4	91

High Brightness Soda Pulp From Northern Hardwoods

Herbert Freedman,
Chemist, Technical Dept.,
Penobscot Chemical Fibre Co.,
Great Works, Me.

In these days of increasing demand for pulps having superior characteristics of strength, opacity, bulk, viscosity, cleanliness, and brightness it behooves the manufacturer of market pulps to look to his products. He must honestly evaluate the qualities of his pulps, he must appraise his methods of producing pulps, and he must ascertain if his pulps are truly competitive on the open market with those pulps cooked and bleached according to the latest methods and developments.

As a result, in most cases, the pulp manufacturer must decide what changes are to be made, where they are to be made, and how they are to be made. The following presents one solution to the problem of producing a superior soda pulp, that solution being in the nature of a major improvement in bleaching operation.

Objectives of Bleaching

The products of the delignification of wood by commercial pulping methods are not pure cellulose; they contain varying amounts of lignin, hemicelluloses, and other impurities. It is the objective of the bleaching process to remove some of these noncellulosic compounds and to destroy those compounds which impart a distinct color to the cellulose. When cellulose is isolated from wood by either an acid or an alkaline cooking process, an equilibrium is reached beyond which partial degradation and destruction of the cellulose results from attempts to remove more completely noncellulosic material. Thus, it is customary to cook to the point of optimum yield of impure cellulose and then to rely on other processes to produce the finished product. The cooking process is essentially completed by the purification and bleaching processes which remove and destroy such coloring matter as may be retained by the fiber.

Chlorination and caustic extraction may be considered purification, rather than bleaching operations since they do not result in "whiter" pulp; actually they extend the pulping process by removal of lignin through the formation and subsequent solution of chlorinated lignin compounds.

Factors to Consider

Since the quality of a bleached pulp is determined to a great extent by the end use to which the pulp will be put, purification and bleaching must be carried out with an eye toward retention of the desirable characteristics inherent in the brown stock. Soda pulp made from poplar and other northern hardwoods is short-fibered, and as such is not one of the stronger pulps. Historically its function in paper furnish is not to give strength to the paper, but to supply it with the qualities of good formation, smooth surface, high opacity, and bulk. In spite of the fact that soda pulp is not as strong as softwood sulphite and softwood kraft pulps, the preservation of its strength, as well as the retention of its other qualities, is of the utmost concern . . . and it is these considerations that dictate the conditions of bleaching. Coupled with the need to retain the premium qualities of soda pulp is the necessity of attaining high brightness. Unfortunately, the achievement of high brightness usually has adverse effects on the pulp's other properties. The development of this ultimate brightness is generally the principal object of the final stage; here the pulp is very close to being completely bleached, and contains very small percentages of noncellulosic material. The pulp is sensitive in this stage, and it is important that the final treatment be mild enough, or selective enough, to avoid substantial degradation.

It is important to choose those bleaching agents, consistencies, temperatures, concentrations, and pH ranges which will accomplish the bleaching process in an economically practicable time, which will give uniform bleaching action, and which will yield pulp of optimum properties. The bleaching operation is further governed by the equipment and physical setup of the mill.

A study of the properties of soda pulp when bleached in the sequences

Based on a paper presented to the Pulp Technology class at the University of Maine.

COMPARISON OF BLEACHING AGENTS

Hypochlorite and Chlorine Dioxide in the Fourth Stage on Poplar Soda*

Sequence	GEB	Mullen	Tear	Freeness	Opacity	Bulk	Viscosity
3% Cl_2—1% NaOH—6% Hypo	81.6	87.8	126	570	85.7	1.33	7.2
3% Cl_2—1% NaOH—6% Hypo—6% Hypo	86.6	82.1	79	265	82.7	1.36	3.8
3% Cl_2—1% NaOH—6% Hypo—0.5% ClO_2	88.1	87.3	131	613	86.9	1.45	7.3
Variations From Third Stage Level							
6% Hypochlorite	+ 5.0	— 5.7	— 47	—305	— 3.0	+ .03	— 3.4
0.5% Chlorine Dioxide	+ 6.5	— 0.5	+ 5	+ 43	+ 1.2	+ .12	+ 0.1
Net Gain							
ClO_2-Treatment over Hypo-Treatment	+ 1.5	+ 5.2	+ 52	+348	+ 4.2	+ .09	+ 3.5
% Gain	+ 1.7%	+ 6.3%	+ 65.8%	+131.3%	+ 5.1%	+ 6.6%	+92.1%

*Beaten 3000 ball mill revolutions.

chlorine - caustic-hypochlorite-hypochlorite and chlorine-caustic-hypochlorite-chlorine dioxide shows that strength, freeness, viscosity, bulk, opacity, and brightness are higher for the chlorine dioxide-treated stock as shown in the table. Other effects noted are reduced shive count and greatly reduced brightness reversion over the drying machine.

Implications of the Data

The implications of the data lead to the conclusion that less "gelatinous" cellulose is formed upon beating when chlorine dioxide is used as a final stage in place of another calcium hypochlorite treatment. This conclusion is based on the following reasoning:

1. Since opacity is the inverse of transparency it is readily apparent that, all else being equal, a brighter pulp should exhibit less opacity than a less-bright pulp. The results show, however, that the chlorine dioxide-treated stock, even though of higher brightness, has greater opacity than the less-bright hypochlorite-treated stock. This may be attributed to the fact that opacity is dependent not only upon the presence of dark, light-absorbing compounds but is also a function of the number of discrete particles in the pulp. The optical impression of opacity of a transparent or translucent substance is obtained as a secondary phenomenon depending on the scattering of light from innumerable surfaces in its structure.

2. Freeness and bulk are dependent upon the reaction of the cellulose fibers to water. The fibers of a "free" pulp are not penetrated and swollen by water to any appreciable extent, rather the water remains in the interstices from which it is readily removed by suction or squeezing. The release of this water, coupled with the release of the pressure, allows the fibers to regain some of their original positions. This is possible because of the absence of "gelatinous" cellulose and because of the resilience of the fibers. Air is thereby drawn into the interstices formerly occupied by the water and a bulky material is formed. The fibers of a "wet" pulp, on the other hand, are readily penetrated by water, and it is this action which results in the formation of "gelatinous" cellulose. This "gelatinous" material retains water in spite of the action of suction or squeezing, and cements or holds the individual fibers together so that they cannot regain any appreciable amount of their original positions upon the release of pressure. This situation results in a material of high density, or low bulk.

Bleaching Agents

Calcium hypochlorite is an old standby but, as is well realized, there is a limit to how much bleaching it can do without destroying desirable pulp characteristics. It is a powerful oxidizing agent, it is not selective in its action, and it must be used under carefully controlled conditions. Achievement of high brightness with hypochlorite is usually accompanied by losses in strength, freeness, opacity, bulk, and viscosity. Also, when bleaching with calcium hypochlorite, an acid after-treatment is desirable to replace cations in the bleached pulp with hydrogen ions thereby reducing color reversion losses. Maintaining high pH, limiting the concentration of hypochlorite, and controlling the reaction temperature are practical methods used to minimize pulp degradation.

Chlorine dioxide is a much more selective bleaching agent than calcium hypochlorite. Due to its lower oxidizing potential it can oxidize the coloring matter in pulp without damage to the cellulose. Since chlorine dioxide is much more expensive than calcium hypochlorite, the total cost can be kept to a minimum by limiting its use to the final stage where its selective action can function to fullest advantage, and where it can serve to reduce color reversion. The variables of time, temperature, pH, and consistency are all important when bleaching with chlorine dioxide. Since local conditions can play an important role in these matters it is necessary for individual mills to determine the effects for themselves. It was determined that optimum conditions with Penobscot soda pulp are 0.5 per cent ClO_2, 12 per cent consistency, 160°F., and a retention time of five hours . . . also, an acidic final pH is beneficial.

Oxidizing Power

When chlorine is dissolved in water the following equilibrium is established:

$$Cl_2 + H_2O \rightleftarrows HOCl + HCl$$

then,

$$HOCl \rightleftarrows HCl + (O)$$

therefore, one atom of active oxygen results from the decomposition of one molecule of HOCl, or one atom of active oxygen is equivalent to one molecule of chlorine.

When chlorine dioxide dissociates it yields two atoms of active oxygen plus one atom of chlorine as follows:

$$ClO_2 \rightleftarrows Cl + 2(O)$$

Thus, it is seen that the oxidizing power of chlorine dioxide is 2½ times that of chlorine on a molecule for molecule basis . . . on a weight basis this amounts to $2\frac{1}{2}$ times $\frac{71.0}{67.5}$ (molecular weight ratio), or 2.36 times the oxidizing power of elemental chlorine.

Calcium hypochlorite dissociates as follows:

$$Ca(OCl)_2 \rightleftarrows 2(O) + CaCl_2$$

Thus, one molecule of calcium hypochlorite is equivalent to two atoms of active oxygen.

Since chlorine dioxide is in a higher state of oxidation than calcium hypochlorite it might seem that it would have a more degrading effect on cellulose than the hypochlorite. Such is not the case, however, since the oxidation potential of ClO_2 is lower in the optimum pH range than that of hypochlorite in the pH range in which it is normally used.

By way of further explanation, the oxidation potential defines the energy with which the respective compound combines with hydrogen and is expressed in volts, the reference electrode being platinum in a 1 N hydrogen-ion solution. It now appears that cellulose is not readily oxidized by chemicals having an oxidation potential lower than about 0.9 volts whereas the impurities react freely at appreciably lower potentials.

Characteristics of Chlorine Dioxide

Chlorine dioxide is a yellow-green to orange gas, its color changing with increasing concentration. It has a disagreeable odor similar to chlorine and somewhat resembling ozone. Upon cooling it forms a red, unstable liquid which freezes at —76°F. and boils at 52°F. Normally it decomposes into oxygen and chlorine. It is toxic, explosive, and corrosive . . . for these reasons it cannot be shipped as a gas or liquid, and shipment as a solution would be prohibitive from a cost standpoint. The only feasible way therefore to have chlorine dioxide available for the bleaching of pulp is to generate the gas at the site.

Generation

At the present time there are six processes for the commercial generation of chlorine dioxide in operation throughout the world. Those most widely used in this country and in Canada are the Solvay Process and the Mathieson Process. The Brown Co. of Berlin, N. H., has installed the Day-Kesting Process which is the

only one of its kind on the continent at this time.

MATHIESON METHOD

The Mathieson process is based upon the reduction of sodium chlorate with sulphur dioxide. In this process, streams of concentrated sodium chlorate solution and concentrated sulphuric acid are fed into the top of an eight-foot diameter, eight-foot high lead-lined reactor. Sulphur dioxide gas, diluted with air, is split into four equal streams and introduced through four porous plates in the bottom of he reactor. Tile draft tubes are placed over each plate and the rising gas is absorbed by the liquor. The reaction is extremely rapid, and the vigorous agitation disperses the chlorate and acid feed uniformly throughout the reactor whose temperature is maintained at 90°-100°F. The overall reaction is:

$$2\ NaClO_3 + SO_2 + H_2SO_4 = 2\ ClO_2 + 2\ NaHSO_4$$

The Mathieson process operates at about the same efficiency as does the Solvay process and, at 90 per cent efficiency, requires 1.74 lbs. $NaClO_3$, 0.59 lbs. SO_2, and 1.32 lbs. H_2SO_4 per lb. of chlorine dioxide produced. Less sulphuric acid is required in this process than in the Solvay process . . . this is due to the oxidation of some of the SO_2 to H_2SO_4 in the reactor.

DAY-KESTING METHOD

In the Day-Kesting Method, hot brine solution is electrolyzed producing sodium chlorate according to the reaction:

$$NaCl + 3\ H_2O + \text{electricity} = NaClO_3 + H_2$$

The sodium chlorate is then reduced with hydrochloric acid:

$$2\ NaClO_3 + 4\ HCl = 2\ ClO_2 + Cl_2 + 2\ NaCl + H_2O$$

The chlorine dioxide and chlorine gases are then passed into water where the more-soluble ClO_2 remains in solution while the chlorine passes off as a gas. This chlorine gas is then reacted with sufficient hydrogen, previously formed, to produce HCl. The sodium chloride is then further electrolyzed to produce more sodium chlorate. In this cyclic process the essential source of the chlorine dioxide is electricity, with the only chemical consumed being sodium chloride. This method is naturally dependent upon a source of cheap power, and it is almost a necessity that mills using this method be already equipped with an installation for producing chlorine and caustic electrolytically.

SOLVAY METHOD

The Solvay process is based upon the reduction of sodium chlorate with organic reducing agents, notably methanol, in sulphuric acid. The overall reaction is:

$$6\ NaClO_3 + 6\ H_2SO_4 + CH_3OH = 6\ ClO_2 + 6\ NaHSO_4 + 5\ H_2O + CO_2$$

This reaction is relatively slow, thus two or three reactors are needed for the reduction to chlorine dioxide. There is a continuous feed of sodium chlorate solution and sulphuric acid into the bottom of the first reactor; from this first reactor there is a continuous overflow into the second reactor; from the second reactor a continuous overflow to the third reactor which, in turn, overflows to waste. Liquid methanol is metered into each reactor as well as a stream of air which strips the chlorine dioxide gas produced into a common header, thence to an absorption tower where downflowing refrigerated water picks up the ascending ClO_2 and carries the absorbed gas as a weak solution into storage tanks.

The first reactor operates at about 130°F. and requires cooling water, the second and third reactors operate at 145°F. and require heating water since they utilize partially-spent liquor and require heat to drive the reaction.

Assuming a sodium chlorate conversion efficiency of 90 per cent, it requires 1.754 lbs. $NaClO_3$, 2.543 lbs. H_2SO_4, 0.163 lb. CH_3OH, and 1.877 lbs. Na_2CO_3 (for salt cake neutralization) to make one lb. of chlorine dioxide.

Penobscot Process

At Penobscot Chemical Fibre Co. sulphuric acid (66°Be.) is received by tank truck and is forced by air pressure into a steel storage tank of 15 000 gallons capacity. Methanol, received in tank cars, is pumped to a 15,000 gallon steel storage tank. Sodium chlorate is received as a solid (crystals) in tank cars and is dissolved with sufficient warm water to form a solution of from 46 per cent to 52 per cent concentration. The dissolution of the crystals is accomplished by pumping the warm water through an external circulating system composed of the storage tank and the tank car itself. The solution is then pumped to the stainless steel storage tank which is one of two identical tanks of 18,000 gallons storage each.

The process is a continuous one, and control of the generating plant is at most a one-man operation. The plant consists of two reactors, each a flooded tower into which metered amounts of sodium chlorate (46 per cent), sulphuric acid (60°Be.), and methanol are fed as well as a stream of air, an absorption tower, and two storage tanks.

The reactors, constructed of steel, are homogeneously lined with chemical lead and are water-jacketed for temperature control. Since the reaction is exothermic, reactor No. 1 is cooled to 135°-140°F. by jacket water. The partially spent liquor overflows into the bottom of No. 2 reactor at a rate corresponding to the feed. Additional methanol is fed into the bottom of reactor No. 2 to increase the efficiency of the chlorate reduction. Because the reaction has slowed down considerably by this time the temperature of this reactor is maintained at 140°-145°F. by circulation of hot water through the jacket. Overflow of the totally-spent liquor is then sent to the sewer.

At Penobscot Chemical Fibre the reactors are so piped that should one reactor be out of commission, the plant can still maintain production of chlorine dioxide through use of the other reactor alone . . . this, of course, at a somewhat reduced efficiency of conversion.

The chlorine dioxide gas evolved in the reactors is stripped from solution by the uprising air stream which dilutes it to a safe concentration and carries it through a header to the absorption tower. Here it is met by downflowing chilled water (40°F.) and absorbed so that it flows as a weak solution (about 8 grams per liter) from the bottom of the tower into one of the two 15,000 gallon glass-lined storage tanks. From storage the solution is pumped as needed to the bleach plants of the soda and sulphite mills.

Refrigerated water is produced by a steam-jet system of refrigeration. The "chill tower" has a capacity of 450 tons (5,400,000 Btu./hr.) and can produce water of 70°F., 60°F., 50°F., and 40°F. at the various tower levels under normal operation. The system operates on the principle that water boiling at reduced pressures, and hence at reduced temperatures, results in cool water being left behind due to the loss of heat of vaporization. Repeating this process in stages makes it possible to produce very cold water by effecting a 10°F. temperature drop in each stage.

Materials of Construction

The gases and solutions involved in the manufacture of chlorine di-

oxide are among the most corrosive known in the chemical industry. The conditions of high acidity, high oxidation-reduction potential, and relatively high temperature make it difficult to find metals suitable for many locations, and only a few organic plastics of relatively recent industrial application have sufficient resistance. Only ceramic materials are completely resistant to the chemical conditions, and they are endangered by the thermal shocks to which the systems are subjected; also, their lack of resistance to mechanical shock creates difficulties.

Lead may be used where HCl is not present in appreciable concentration. Where HCl is present at high temperatures only ceramic materials can be used. For chlorine dioxide gas or solution unplasticized polyvinyl chloride is coming into wide use as is Saran (polyvinylidene chloride).

Stainless steels have varied behavior with chlorine dioxide . . . some stand up fairly well while others go to pieces quickly. Type 317 with very low carbon content has given best results. Hastelloy C type nickel alloys stand up well, but they are very expensive. Titanium-lined equipment is said to be extremely resistant but is extremely high-priced.

Safety

There are two hazards connected with chlorine dioxide and its use—respiratory toxicity and explosion. Respiratory toxicity can be overcome by operating under vacuum and/or adequate ventilation. Personal protective equipment such as chlorine-type masks should always be provided where chlorine dioxide is made and used. In 20 years' experience at Olin Mathieson there has been no indication of cumulative effects; exposure to chlorine dioxide has resulted in temporary discomfort only.

Explosion dangers have been overcome by always handling chlorine dioxide gas diluted with an inert gas to a partial pressure below one-seventh of an atmosphere, and by providing explosion lids on vessels where the safe concentration might be accidentally exceeded. Chlorine dioxide in water solution will not explode. Light oxidizable materials such as dust, petroleum-base lubricants, and organic compounds in general, sulphur, etc., lower the decomposition temperature of ClO_2. Normally, in a clean system, the ignition temperature is in the vicinity of 266°F. with a partial pressure of 100—300 mm. of mercury.

Bleaching Systems

There are two types of tower systems for chlorine dioxide bleaching of pulp . . . the upflow tower system and the downflow tower system. Both systems process pulp at 12 per cent consistency, 160°F., and five-hours retention time . . . both systems are equally effective at bleaching pulp.

The upflow tower system is essentially a large tower into the bottom of which stock, steam, and chlorine dioxide are fed. The entire mass moves up in the tower as more stock is fed in behind it. It requires five hours for the plug of stock to reach the top of the tower where it is diluted, neutralized, and sent on its way to the chlorine dioxide washer.

The downflow tower system is composed of an upflow pre-retention tube coupled with a downflow bleaching tower. Stock, leaving the previous washer at high consistency, enters a large pipe leading to a single shaft mixer wherein steam is mixed with the stock. From here, the mixture moves to a thick stock pump and feeder immediately after which chlorine dioxide solution is added and mixed. The pulp, now well-mixed with steam and bleaching chemical, moves continuously up through the pre-retention tube to the top of the tower proper. Here it drops into the tower and works its way down until it reaches the dilution zone where caustic is added to neutralize the acid formed and to tie up residual chlorine dioxide. The diluted and neutralized pulp then moves to the chlorine dioxide washer.

At Penobscot Chemical Fibre the downflow tower system was installed . . . two stages in the soda mill and one stage in the sulphite mill.

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Prices of Fibers

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§390.00/ —	§380.00/ —	§390.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED AUGUST 18

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	$7.50/7.25	n.a.	n.a.	7.50
3	7.25/6.00	$7.50/7.00	6.75/6.50	7.00
4	6.00/5.25	6.25/5.75	6.25/5.25	6.50/6.25
5	5.25/4.75	5.25/4.75	4.75/4.50	5.75
6	4.75/3.50	4.50/4.25	4.00/3.25	3.50
7	3.50/2.50	4.00/3.00	3.00/2.75	3.00/2.50

WASTE PAPER MARKET

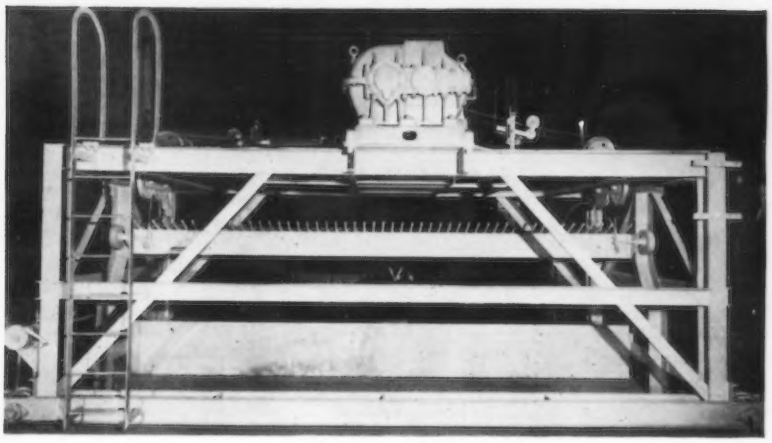
Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Aug. 24	Boston Aug. 24	Chicago Aug. 24	Los Angeles Aug. 24
No. 1 Mixed Paper	$ 10.00/ 12.00	12.00/ 14.00	9.00/ —	14.00/ 15.00
No. 1 News	14.00/ 15.00	15.00/ —	— /00.91	18.00/ —
Overissue News (Lg. size)	13.00/ 15.00	12.00/ 14.00	23.00/ —	20.00/ —
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	23.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	35.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	37.50/ —	37.50/ —	35.00/ —
(Semi-chem. medium)	47.50/ —	47.50/ —	45.00/ —	36.00/ —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	65.00/ 70.00	53.50/ 60.00	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	40.00/ —
Manila Tab. Cards	77.50/ 80.00	77.50/ 80.00	75.00/ —	65.00/ 70.00
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	47.50/ —	32.50/ 35.00
White Ledger	60.00/ 62.50	60.00/ 65.00	57.50/ —	55.00/ —
Mixed Book & Mag.†	25.00/ 28.00	— / —	17.00/ —	— / —
No. 1 Books‡	30.00/ 32.50	24.00/ 26.00	35.00/ —	17.00/ 24.00

♦ Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

NEW EQUIPMENT & SUPPLIES



Intake Trash Rake Is Self-Cleaning

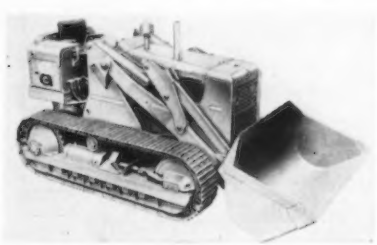
Introduction of an improved type of mechanical trash rake is announced by Frank W. Stuker and Associates.

The rake is self-guiding, self-clearing and self-dumping to provide thorough removal of trash ranging from light debris to heavy waterlogged materials. They can be made to start and operate automatically on signal from remote control or differential water level. An electrically driven mechanism handles a complete range of depths with low power consumption. Easy one-man operation makes it possible for the Stuker rake to travel across the face width of rack bars extending across the forebay. Complete information on sizes, widths and depths up to 100 feet, for installation during original construction or after completion is available from Frank W. Stuker & Associates, 360 Delaware Ave., Buffalo 2, N. Y.

Tractor Shovel Has Operator Appeal

The Allis-Chalmers 1½ cu. yd. HD-6G tractor shovel is powered by a 4-cycle diesel engine rated at 72 net h.p. Four forward speeds from 1.5 to 5.5 m.p.h. and two reverse speeds of 2.0 and 4.1 m.p.h. may be selected with the single lever shift.

Dumping height of the unit is over nine feet. The curved-bottom bucket tips back 40 at ground level, with 21,000 lbs. of pryout force at the cutting edge. Solid steel booms and linkage are fully "in-line" with the lift and dump cylinders. Wide spaced boom pivots are straddle-mounted on the double-walled shovel side frames. Mounting the hydraulic system's gear-type pump directly to the front end of the engine crankshaft has eliminated the conventional universal joints and driveshaft.



Operator's conveniences include: deck-level gangway; adjustable foam-padded armchair; grouped controls; 24-volt pushbutton starting; decelerator pedal; bucket level indicator; and down-sloping hood, slim fuel tank and stub fender design to give maximum visibility.

Maintenance features include: lifetime-lubricated roller bearing truck wheels, idlers, and six support rollers; unit-construction of major assemblies; hydraulic lines and hoses equipped with reusable fittings; and simplified fan belt replacement. The fan is driven from a double sheave on the timing gear shaft rather than the crankshaft.

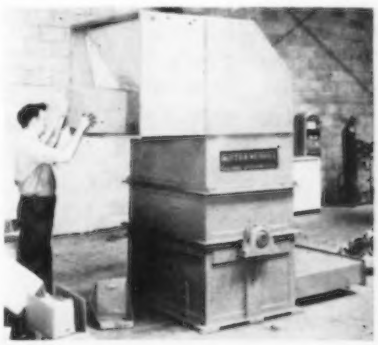
Rear-mounted equipment includes hydraulic ripper and a backhoe. Front pin-mounted matched attachments include a rock bucket, rock fork, light materials bucket, lift tongs and lift forks; crane hook, and straight and angling type dozers.

Rust Preventive Is Water-Displacing

Rust Veto 377 is available from E. F. Houghton & Co. for protection of metal parts to be stored indoors for long periods. Applicable even to wet metal surfaces, the Rust Veto product is water-displacing. This is due to the ability of the preventive to force aside, because of its affinity for metal surfaces, any moisture which might be present.

The preventive "creeps" under surface moisture coating the metal with a 0.0003-inch film which protects it against oxidation.

According to the supplier, the film is not wiped off by handling. Treated parts need not be cleaned before lubricating because the preventive is compatible with mineral oils. Test results are cited in which the product withstood the 100 per cent humidity test for 30 days and 24 hours in a 20 per cent salt spray. A descriptive folder is available from E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.



THE MITTS & MERRILL CARTON SHREDDER is claimed to reduce materially the amount of space required for the storage of boxes and to save up to 80 per cent of the time taken by other methods of hand-fed bailing. Fed either by hand or by conveyor, the shredder produces small bits of cardboard that can be pneumatically fed to a bailer, producing a uniform product. Available from Mitts & Merrill, Saginaw, Mich.

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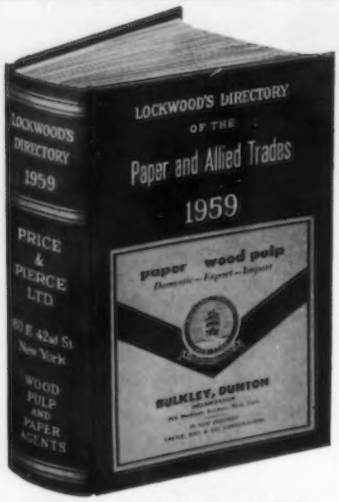

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An alphabetical list of officers and operating executives.

LISTS OF NEW AND IDLE MILLS
CLASSIFIED SECTION

Products of pulp and paper mills and converters of paper and cardboard products.

CITY ADDRESSES

street addresses of U. S. and Canadian pulp and paper mills maintaining city offices.

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CLASSIFIED LIST OF EQUIPMENT
AND SUPPLIES

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of paper, board, moulded pulp, etc.

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RAGS AND PAPER STOCK DEALERS
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Kind and grade consumed by the mills.

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Steel Fittings UPVC-Lined

Production of 8-, 10- and 12-inch UPVC-lined steel fittings to alleviate mechanical stress problems and to increase allowable pressure-temperature limits in the handling of corrosive fluids in large sizes of unplasticized polyvinyl chloride pipe has begun at Tube Turns Plastics, Inc., Louisville, Ky.

Initial production includes 90- and 45-degree elbows as well as tees, with flanged ends or Victaulic grooved ends. The UPVC-lined fittings are rated for 190°F. and 175 p.s.i. test pressure, the company said.

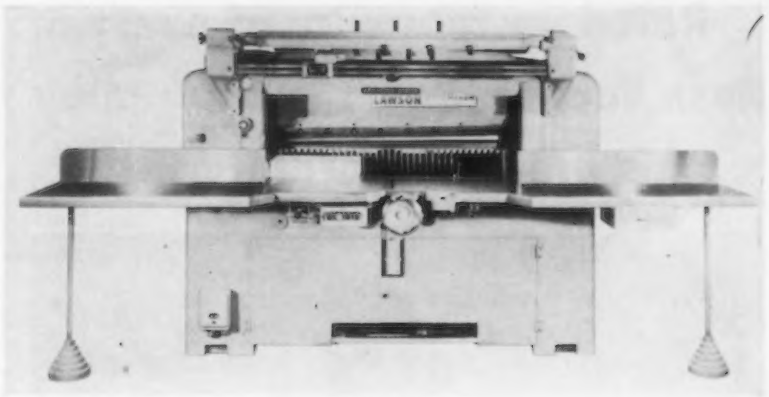
TTP's product consists of light-wall carbon steel with a fabricated lining of 3/32-inch thickness UPVC. The fittings match Schedule 80 UPVC pipe, and the center-to-face and bolt circle dimensions of flanges fittings correspond to ASA standard B 16.1. This material is designed to be used with solid UPVC pipe in schedules 80 and 120.

Dozer Blades Add Maneuverability

Angling blade bulldozers, engineered to match the width, power and traction of the Caterpillar-built Traxcavator, are quickly interchangeable

with Traxcavator buckets, either front or side delivery. The simple changeover involves only removing the bucket and attaching the Balderson frame, using the Traxcavator pins.

Claims made for the Balderson Angling Blade include: increased maneuverability and a shorter cutting edge that increases unit force; increased visibility; fast, positive tilt and pitch; high lift action, and spacer plates fitted between the Traxcavator engine frame and the lift arms to eliminate excess side-draft. Blades are available for No. 933, No. 955 and No. 977 Traxcavators. For further information, write to Balderson Inc., Wamego, Kans., or consult your nearest Caterpillar Dealer.



Hydraulic Cutter Line Expanded, Improved

Fifty stroke-a-minute heavy-duty hydraulic clamp cutters in 46-inch, 52-inch and 55-inch sizes have now been added to the Lawson Pacemaker line.

Newly-engineered features are said to include: 20 per cent faster knife speed; rear table slot closing device to facilitate rear loading or "swinging" the lift; true two-end knife pull utilizing a unique double crank design; three-point knife bar support to prevent bowed or concave cuts; double overload and non-repeat safeties; and cushioned hydraulic clamping. Available as optional equipment are Lawson's air cushion device, an adjustable flexible Contour Clamp that compensates for surface irregularities due to ink build-up or the nature of the stock itself, and Lawson's famous Electronic Spacer that is said to move a lift automatically through a complete series of cuts and trim-outs with .002-inch accuracy.

Features include: two-hand safety operation; skid-proof tiptoe treadle for gauging the cut; 6½-inch clamp opening; pop-up cutting stick ejector; gears operating in a sealed bath of oil for constant lubrication; simplified knife changing; floodlighted table; three-piece fingered back gauge that can be tilted; double-end flywheel suspension not affected by machine settling or floor sag; and rigid crossbraced tables. An extra long 77-inch extended rear table is available as optional equipment on the 55-inch cutters.

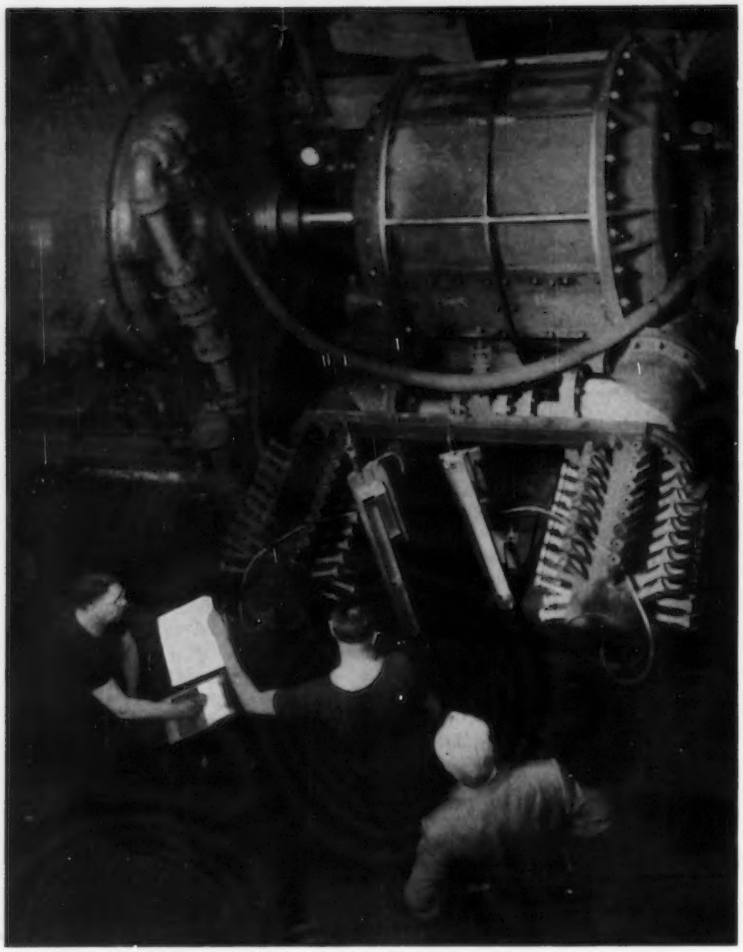
Additional details may be had by writing directly to The Lawson Co., 2011 Hastings Street, Chicago 8, Ill.

A-C Motors Available In 1 to 250 H.P. Size

A line of integral horsepower a.c. motors has just been announced by Reliance Electric and Engineering Co. Available in sizes from one through 250 horsepower in protected (open), weatherproof, totally enclosed, corrosion-proof and explosion-proof enclosures, the Duty Master motors may be specified in all standard speeds and voltages. Designs include polyphase, ball bearing, vertical and horizontal mounting arrangements with feet or footless, with NEMA C-face, D-flange or P-base brackets.

Principal features reported include: low inertia, fast accelerating rotor constructed of pressure-cast aluminum, and dynamically balanced to 0.0002 inches tolerances; 40°C. temperature rise; continuous duty, with a 15 per cent service factor; double-end ventilation on horizontal units above the 180 frame size, and through ventilation on all vertical or flange-mounted horizontal models through the NEMA 445U frame;

Rated performance of every Nash Vacuum Pump is assured by this precise laboratory test

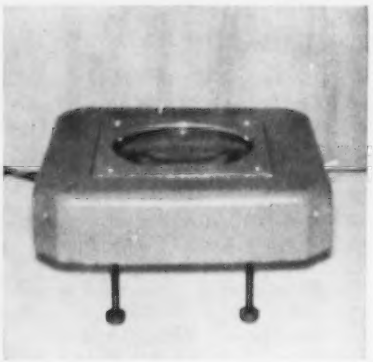


Rated capacities of Nash Vacuum Pumps are not theoretical. Every Nash Pump is tested individually. Air capacity is determined by delivery thru accurately machined and calibrated orifices. Related vacuum is measured by precise mercury column, and horse power is recorded electro-dynamically. Records of these tests are retained by us, and certified copies are available to Nash Pump owners.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

NASH ENGINEERING COMPANY

440 WILSON ROAD, SO. NORWALK, CONN.



THE MODEL 1206 FLUORESCENT INSPECTOR has two five-inch diameter double convex lenses providing approximately 3.56X fixed-focus magnification. Another model with 2X magnification is available. Indirect lighting around the lens is by a 22-watt Circline fluorescent tube. The tube and lens section are enclosed in plastic housing. The Inspector is manufactured by The Larrimore Co., P.O. Box 1234, St. Louis 88, Mo.

Metermatic lubrication with automatic grease relief; laminated mylar-paper slot cell insulation; varnish glass phase insulation; molded, plasticized top and mid sticks and vinyl glass sleeving on the leads; dry windings have been coated for protection against acid, alkali, water, oil and most adverse environmental contaminants. Complete specifications are available from Reliance Electric and Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

Vertical Agitators Have Minimum Shaft Deflection

A complete line of heavy-duty vertical drive agitators incorporates an output shaft bearing assembly designed to provide maximum rigidity and minimum shaft deflection, under all loading conditions.

Run-out or deflection at the center of the seal or stuffing box is controlled within close limits to minimize wear at this critical point. As a result, these units are suited for operation under pressure or where noxious or corrosive fumes may be contained, as for ordinary open tank agitation. Downtime for stuffing box maintenance or seal replacement has also reportedly been virtually eliminated. The cartridge type mechanical seal operate at pressures up to 2500 p.s.i. and can be changed without disturb-

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STANLEY STEEL STRAPPING SERVES the PAPER INDUSTRY

- *Quality Strapping, Tools and Equipment*
- *Long Experience*
- *Factory-Trained Specialists*

More speed in packaging . . . greater protection in transit. That's why more and more modern paper mills are relying on The Stanley Steel Strapping System and Stanley's complete line of POWER Steel Strapping Tools, Machines and Equipment.

Put Stanley paper packaging and carloading experience to work for you. Let the Stanley Steel Strapping Specialist present his ideas for improvement . . . and test-prove those ideas in your own mill.

Write STANLEY STEEL STRAPPING, Division of The Stanley Works, Dept. H, 1307 Corbin Ave., New Britain, Conn.

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This famous trademark distinguishes over 20,000 quality products of The Stanley Works, New Britain, Conn.—hand tools • electric tools • builders hardware • industrial hardware • drapery hardware • automatic door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany. In Canada: Steel Strapping Division, The Stanley Works of Canada Ltd., Hamilton, Ontario

ing the drive or the impeller shaft. Specially cooled seal cartridges are also available.

The bearing and shaft support assembly is designed to accommodate readily, long unsupported overhung shafts, with no "in tank" bearings required.

The drive utilized in this entire line of agitators is available from 3 h.p. to 60 h.p., in a wide range of speeds. The gears are rated to AGMA standards. All units are supplied with standard ASA pipeflange mounting. A complete range of impeller designs and materials is available, both standard and special, to meet specific agitation requirements.

Technical data is covered in catalog USV available from U. S. Mixer, Division of Stockdale Engineering Co., Haddonfield, N. J.

Automatic Batch Control By Preset Programming

Toledo Scales' "Batchboard" Remocon control is said to afford the latest in proportioning control through automatic presetting of unlimited numbers of batch formulas.

The "Batchboard" eliminates the necessity for manual adjustment of individual weight selectors to obtain the desired quantity of each ingredient in the batch. Toledo Remocon Batching Systems are designed to provide control of entire batching operations from a central remote location.

Each "Batchboard" is approximately 7 inches by 10 inches by 2 inches. An individual "Batchboard" is used for each formula, and once the unit is wired, it can be used indefinitely without rewiring. As many as 20 ingredients can be controlled by one "Batchboard." Each board is inserted into the receptacle and makes dust-free connection with the programming unit in the panel.

Multiple batches or partial batches can be delivered by merely setting a selector switch, without changing the master formula. Two-Speed Dribble Control is designed to reduce the rate of flow of material prior to the cutoff point, thereby affording more accurate final cutoff. Preact control causes the final cutoff to occur prior to the actual preset weight in order to compensate for the falling column of material between the feeder and the weigh hopper. Automatic moisture compensation is also available on any of the Remocon systems along with tolerance control of each ingredient.

For further information on the Toledo "Batchboard" systems, write Toledo Scale, Division of Toledo Scale Corp., Toledo 12, Ohio.

If it takes 7.05 milligrams of Bond-Blue B to match a blue on laboratory sheets weighing 3 grams, how many pounds of dye per ton would you call for, to produce the same shade in the mill?

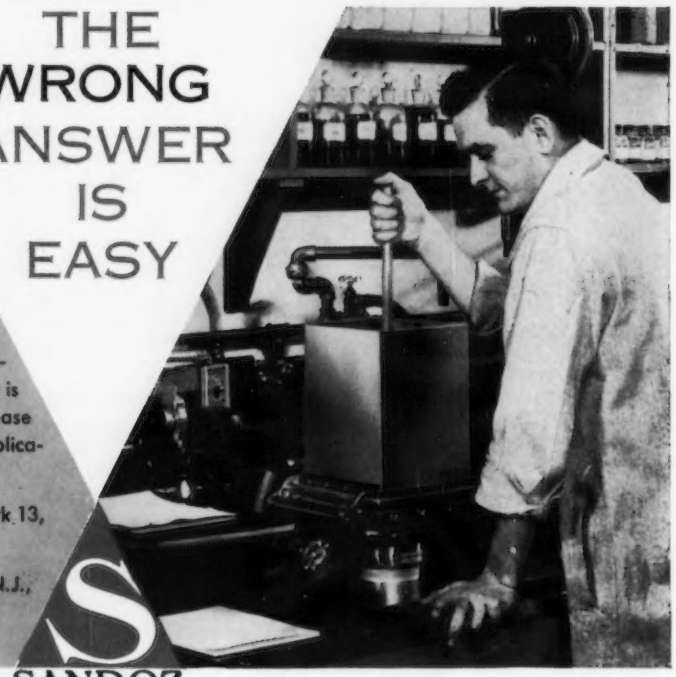
Warning: A simple transposal to equivalent pounds of dyestuff per ton of stock will give the wrong answer.

For a technical article discussing the problem of adjusting a laboratory dye formula to meet requirements of the individual mill, drop us a line. It is the latest Sandoz publication, designed to increase the industry's understanding of color and its application to pulp and paper.

SANDOZ, INC., 61-63 Vam Dam Street, New York 13, New York, ALgonquin 5-1700

District Offices: Charlotte, Cincinnati, Fair Lawn, N.J., Hudson, Mass., Los Angeles, Philadelphia.

THE WRONG ANSWER IS EASY



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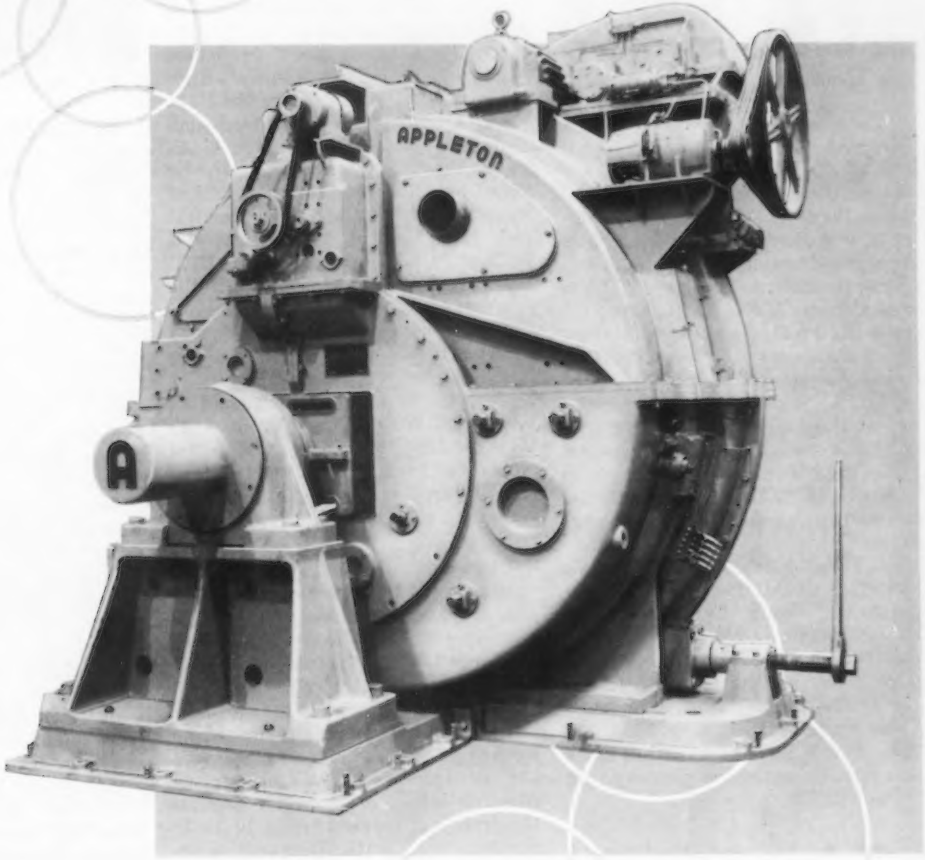
SANDOZ

— the original builders of Roberts grinders and the oldest hand in the business presents, reasonably enough, the industry's . . . .

NEWEST RING-TYPE GRINDER



NEW The APPLETON grinder features *new* features and heavier components . . . *delivers* more horsepower for greater production . . . is especially adaptable to automatic feeding . . . has conclusively proved its superiority in mill operation.

Complete details will be sent promptly upon request. Available on lease-purchase plan, if desired.

APPLETON MACHINE COMPANY

APPLETON, WISCONSIN

PJT NEWS OF SUPPLIERS

R. E. Brouillard

H. A. Webb

General Aniline & Film Corp., Dyestuff and Chemical Division, announces the appointment of Robert E. Brouillard as sales manager—pigments, and H. Alison Webb as sales manager—dyestuffs.

Dr. Brouillard graduated from Bates College, Maine, in 1938 and received his Ph.D. from Clark University in Massachusetts in 1941. After several years with American Cyanamid Co., he joined GAF in December 1948 at the Linden plant and moved to New York as assistant manager of the pigment sales department in February 1957. In January 1958 he was named product manager—pigments.

Mr. Webb joined the company in 1935 after graduating from Clemson College in South Carolina. After serving in both technical and sales capacities in the Charlotte office for many years, he was appointed manager of the Chattanooga office when it was opened in January 1954. He came to New York as assistant sales manager, dyestuffs and pigments, in October 1957.

Stone & Webster Engineering Corp. names three assistant vice presidents, two in Boston and one in New York. Stone & Webster Engineering is engaged in the design and construction of power plants, petroleum refineries, chemical processing plants, nuclear facilities and industrial buildings in all parts of the world.

The new assistant vice presidents are Robert S. Boyd, appraisal manager, J. Marshall Hamill, administrative assistant in Boston, and Wilbur S. Roberts, Jr., manager of new business activities in New York.

Mr. Boyd, a native of Pittsburgh, Pa., was an engineer and later manager of the valuation and real estate division of the Pittsburgh Railways Co., from 1930 to 1955, before he joined Stone & Webster. A graduate of Carnegie Institute of Technology, he is a member of the American Gas Assn., American Society of Appraisers and the National Society of Professional Engineers.

Mr. Hamill was born in Tulsa, Okla., attended Tulsa Central High School, and graduated from the U. S. Naval Academy at Annapolis, Maryland, in 1940. Serving in the U. S. Navy through World War II, he joined Stone & Webster in 1946 and has worked on the design of chemical and petrochemical plants in Great Britain and various parts of the U. S.

Mr. Roberts, who has headed the new business division since January 1958, was born in Albany, N. Y., and was graduated from Union College in Schenectady. During World War II, he was with the War Production Board in Washington. From 1949 through 1953 Mr. Roberts was assigned to Great Britain where Stone & Webster was erecting a petroleum refinery.

Diamond Alkali Co., Cleveland, announces the promotion of R. E. Shepard and the transfer of W. E. Downey in its Electro Chemicals Division, technical service group.

At his new post Mr. Shepard will assume responsibilities as a field technical service man. Previously, he worked in the company's plant control laboratories as well as various research laboratories before joining the technical service group in 1958. He has been with Diamond since 1940.

Mr. Downey transfers to the vacancy created by Mr. Shepard in the technical service group. He has been with Diamond since 1956, when he graduated from Otterbein College, Westerville, Ohio, with a B.S. degree in mathematics and chemistry. For the past three years he has been a member of the analytical division in the company's research department.

Allis-Chalmers Manufacturing Co. announces the appointment of Leonard H. Sence as assistant to E. F. Greiwe, manager of the centrifugal pump department at its Norwood (Ohio) Works.

Mr. Sence had been associated with Allis-Chalmers West Allis centrifugal pump department since 1955. He joined the company in 1953 and is a mechanical engineering graduate of Kansas State College.

B. K. Hartman

R. G. Bottorf

Syntron Co., Homer City, Pa., subsidiary of Link-Belt Co., announces the appointment of Byron K. Hartman of Philadelphia as executive vice president and general manager. Mr. Hartman has been sales manager of Link-Belt's Colmar plant outside Philadelphia. Robert G. Bottorf succeeds him there.

Mr. Hartman joined the parent company in 1937. He is a graduate of Brown University, also attended the University of Pennsylvania and Columbia University, and is a member of the American Society of Civil Engineers.

Mr. Bottorf has been with Link-Belt since 1938 except for 3½ years during World War II while in the U.S. Navy. He has been a designer at the company's Philadelphia plant, district sales engineer in Buffalo and a materials handling specialist at the Philadelphia and Colmar plants. He is a graduate of Pennsylvania State University and a member of the Association of Iron and Steel Engineers and American Institute Mining and Metallurgical Engineers.

Syntron manufactures vibratory materials handling equipment and electronic devices and equipment.

Hercules Powder Co. has disclosed that it is sponsoring a $500,000 program, under which a basic study will be made of the toxicological properties of chemicals which Hercules supplies to the food packaging industry.

The program, developed with the guidance and cooperation of the Food and Drug Administration, will be conducted by the Industrial Bio-test Laboratories, Inc., Northbrook, Ill., and will have two phases: the first covering acute and sub-acute toxicological studies; the second to be

(Continued on page 44)

IDEAS

FROM THESE OUTSTANDING BOOKS WILL HELP YOU

MODERN PULP AND PAPER MAKING

Revised and enlarged 3rd Edition, edited by John B. Calkin, Consultant to the Pulp, Paper and Chemical Process Industries.
Completely describes and discusses all principles involved in modern pulp and paper making. 558 pages.

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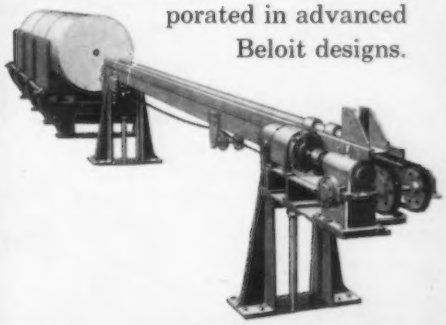
ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS

Beloit-designed,
completely automatic

Roll and Shaft-handling equipment

Rapid shaft removal—finished roll delivery—shaft dressing and shaft return—all are incorporated in advanced Beloit designs.



» **ACT!** *For full information about Beloit roll and shaft-handling ask a Beloit Sales Engineer, or write to Beloit Iron Works, Beloit, Wisconsin.*

BELOIT
PAPER MACHINERY
your partner in papermaking

The Labors of Hercules

Better Papermaking Chemicals
Better Technical Assistance

Mythology—*Hercules was a mighty hero, whose feats of strength are told in Greek mythology. One of the labors assigned to him by the Gods was the capture of the fearsome three-headed Cerberus, a vicious canine that guarded Pluto's kingdom in the Lower World. With bare hands Hercules choked the beast and returned to earth with the animal in chains.*

Technology—Hercules has been known for a half century as an unfailing source of supply for quality papermaking chemicals; yet must labor anew each working day. For reputations are earned, not from history, but on the basis of today's performance. Typical of these modern labors, in addition to the products themselves, are these: continually maintained programs of research, development, and application at four separate laboratory locations; the unequalled technical services of a staff of over fifty field specialists in seven district offices. Why not let Hercules labor on your behalf?

Paper Makers Chemical Department

HERCULES POWDER COMPANY
INCORPORATED

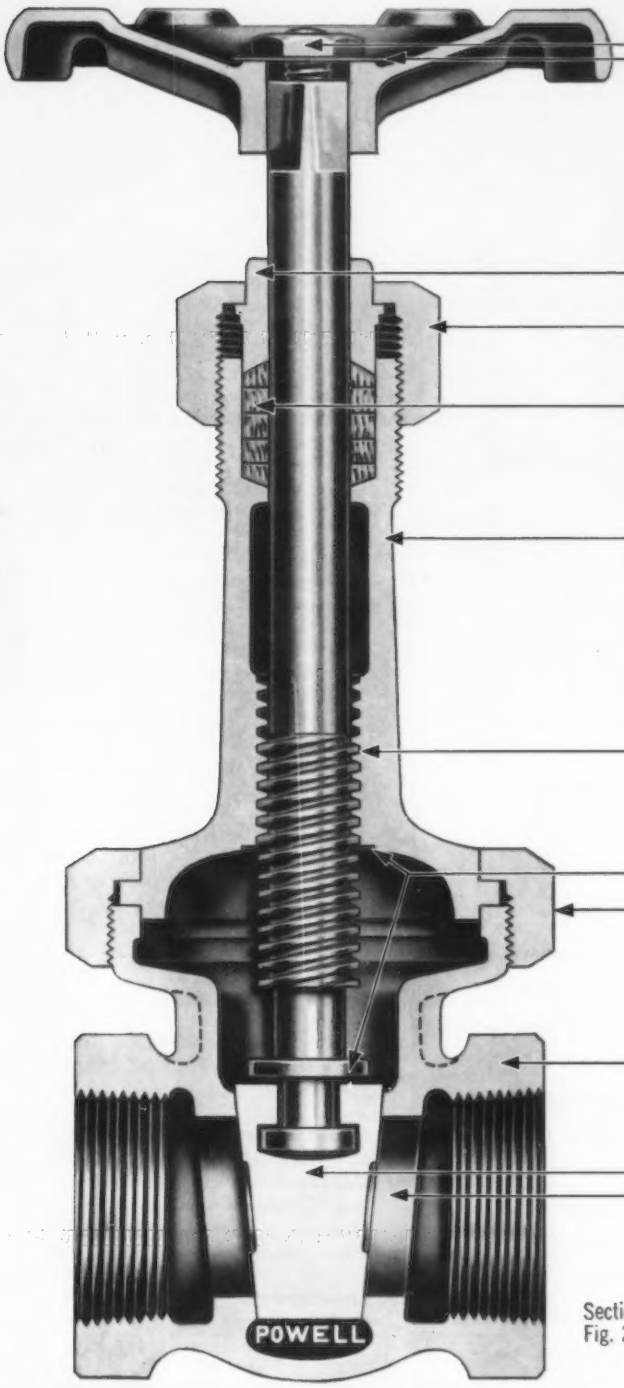
Wilmington 99, Delaware

PP59-6

New POWELL Bronze Union Bonnet Gate Valves

for 125 and 150 pounds WSP

Powell's new BRONZE Union Bonnet Gate Valves have many superior features — some of which are outlined here. For complete details, write us for new illustrated circular. Or check with your nearest Powell Valve distributor. Always look to Powell first for all your valve needs.



Handwheel Nut—securely holds malleable iron, non-heating handwheel to the stem.

Identification Plate—gives Figure Number and kind of valve.

Protruding Packing Gland—a Powell feature—compresses the packing, offers additional guidance to the stem, and prevents packing nut from becoming loose and rotating with stem.

Heavy Hexagonal Packing Nut—for holding gland and adjusting packing.

Deep Stuffing Box—holds more than ample amount of high-grade steam packing.

Long Bonnet—cast of high tensile bronze for long service.

Stem—is high tensile bronze, extra heavy, of large diameter, with long Acme threaded section.

Repack-Under-Pressure Seat and Collar—permit valve to be repacked under pressure when fully open.

Octagonal Ring Nut—is deep threaded and tightly holds body-bonnet connection. Affords additional wrenching positions.

Body—a high tensile bronze casting, scientifically designed to provide full flow area through the valve.

Wedges—Interchangeable Solid or Double Wedges are available in rising stem valves. They are held to stem by a "T" slot, and are accurately guided to valve seats by means of integral cast lugs that travel in female guideways in the valve body. Entirely clearing the waterway, full unobstructed flow through is assured.

Ample Space—between seats and end of pipe thread prevents injury to seats when screwing pipe into the body.

Sectional—Union Bonnet Rising Stem Gate Valve
Fig. 2700 (125 pounds), Fig. 2714 (150 pounds).

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**

NEWS OF SUPPLIERS

(Continued from page 40)

concerned with chronic toxicological studies ranging up to three years in length.

The results of this study will be available to aid customers in their compliance with requirements of recent amendments to the Food and Drug Act.

The initial program is estimated by Hercules to cost about $500,000, but continuing studies will add considerably to the total cost in the years ahead.

Standard Chemical Ltd., announces the appointment of G. W. Legg to its pulp and paper service department. This department specializes in the development and servicing of processes producing and using chlorine dioxide manufactured from sodium chlorate.

Mr. Legg was formerly a chemical engineer with the Pulp and Paper Research Institute of Canada and was principally engaged upon development engineering in Canada and Europe. Previously he carried out consultant and field work in various parts of the world for pulp and paper engineering consultants in England. He brings to his new position extensive experience in pulp and paper processes, engineering and research.

Standard Chemical now operates at Beauharnois, Quebec, a chlorine and caustic soda plant and its new facilities to produce sodium chlorate will be in operation soon.

J. M. Coffey

R. S. Forsyth

National Starch and Chemical Corp., New York, announces the promotion of John M. Coffey and Robert S. Forsyth, both of adhesive technical development, to senior development chemists.

Mr. Coffey, who is located with the company's Midwest adhesive technical development group in Chicago, joined National in 1953 after serving three years as a 2nd Lieutenant in the Army Chemical Corps. Spending his first year with National in resin research, he then transferred to technical service at the company's Alexander Laboratories, Plainfield, N. J. Mr. Coffey returned to Chicago in 1957 to continue activities in adhesive development and field service. He is a graduate of Tufts College and holds a B.S. degree in chemistry.

Mr. Forsyth, who has an extensive background in packaging machinery work, joined National's technical development group in 1952. Interrupting his activities in 1953 for duty with the Army, he returned to the company in 1955 to take up new responsibilities in technical development. Mr. Forsyth has had experience in almost all phases of adhesives. He holds a B.S. degree in chemical engineering from Lafayette College and recently obtained an M.S. in industrial management from Stevens Institute of Technology, Hoboken, N. J.

Bailey Meter Co., Cleveland, Ohio, announces the appointment of K. R. Dodson as resident engineer in Corpus Christi, Tex., subdivision of the company's Houston District. Mr. Dodson's address is 1009 Belmeade, Corpus Christi, Tex. Bailey Meter manufactures instruments and automatic controls for the power and process industries.

Mr. Dodson joined the company in 1952, and has been on the Houston staff since that time.

This is not an offering of these shares for sale, or a solicitation of an offer to buy, any of such shares. The offering is made only by the Prospectus.

327,042 Shares

Union Bag-Camp Paper Corporation

Capital Stock
($6¼ Par Value)

Price $44.75 per share

These Shares are being sold to the Underwriters by The Louis Calder Foundation and no part of the proceeds will be received by Union Bag-Camp Paper Corporation. Copies of the prospectus may be obtained from any of the several underwriters only in states in which such underwriters are qualified to act as dealers in securities and in which the prospectus may legally be distributed.

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August 19, 1959.

HANDMADE PAPERS OF JAPAN

THE HANDMADE PAPERS OF JAPAN by Thomas Keith Tindale and Harriett Ramsay Tindale. This study, which is the result of several years of research in Japan, is one of the most ambitious works on the subject of papermaking which has ever been attempted. Here is a work, indeed, which is not only a distinguished history of this unique craft, but a veritable museum of paperiana—a collection which contains: actual samples of fabulous old and rare papers, a volume of magnificent contemporary papers, and a portfolio of exquisite watermarks. We believe that these particular features, which necessarily limit the size of the edition, can never be rivaled.

Vol. I. The Handmade Papers of Japan.
Introduction by Dard Hunter and Bibliographical Guide for Students of Japanese Hand Made Papers by Bunsho Jugaku. *Complete history and description of papermaking in Japan,* supplemented with botanical drawings, and a series of 32 full-page photographs by the distinguished photographer, Francis Haar. The text also includes *facsimile hand-colored reproduction, with translation, of the oldest Japanese illustrated work on papermaking — the KAMISUKI TAIGAI,* which was done in 1784.

Vol. II. The Seki Collection.
Portrait and biography of Mr. Seki, with 187 actual mounted specimens of paper from his collection. These samples range in date from the Nara Period (710-793) to the present day. Each sample, which has been carefully authenticated, bears a complete description about its general type and method of manufacture.

Vol. III. The Contemporary Collection.
A volume of whole-page samples of 139 different papers from 18 Perfectures and the city of Kyoto—a representative cross section of handmade papers now being produced in the various districts under present-day conditions. The name, materials, place of manufacture, and use of each paper is given.

Vol. IV. The Watermark Collection.
A portfolio of 20 of the most modern Japanese watermarks made in the mills of the Government Printing Agency at Oji and Saidaiji. The process of hand rubbing by which these transparencies are made is described in Volume I. These exquisite samples contain elaborate landscapes and seascapes, Noh drama masks, flowers, fruit, Japanese women in native costumes and other characteristic designs. The watermarks, which have been laid in loose so they may be easily examined and exhibited, are done on specially-made colored papers. They are accompanied with a two-page introduction and a three-page descriptive catalogue.

The Fibres Envelope, containing labeled specimens of the five different fibres which are used in Japanese paper making.

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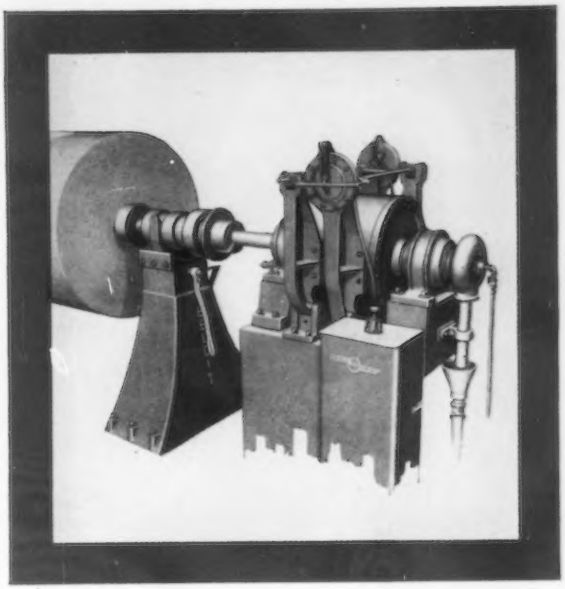

Looking for dependable unwind tension control?

Beloit time-tested Unwind-stand Brake

Investigate this superior equipment—unquestionably the finest unwind-stand control on the market today. Beloit brakes can be manually controlled or furnished with Beloit automatic Tru-Tension. Tru-Tension provides for complete roll inertia compensation, maintaining selected sheet tension for winder sets of uniform hardness.

» ACT! *Write for full information—or let a Beloit Sales Engineer show you how easily you can add the Beloit Unwind-stand Brake to your machine. Write to Beloit Iron Works, Beloit, Wisconsin.*

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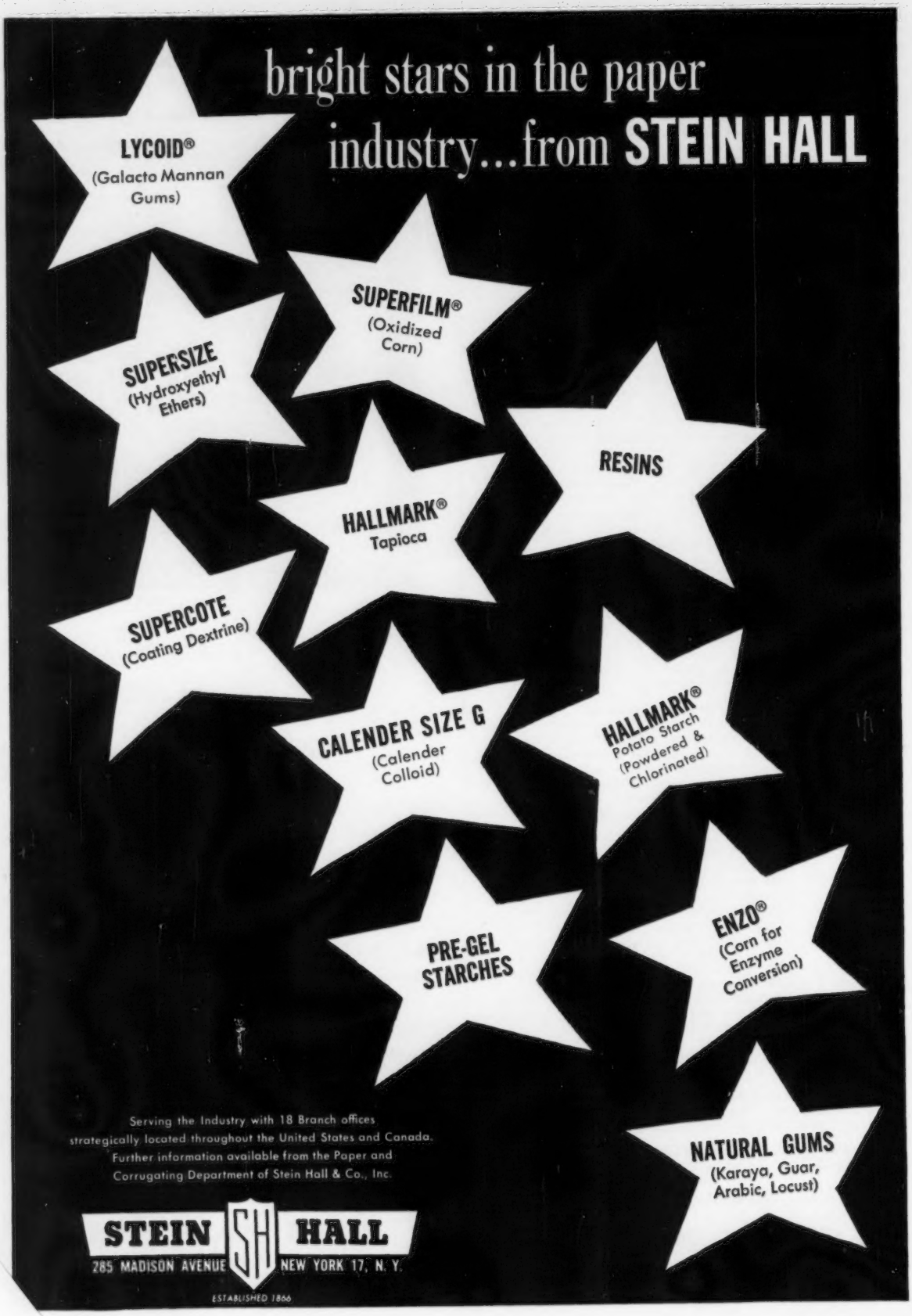
your partner in papermaking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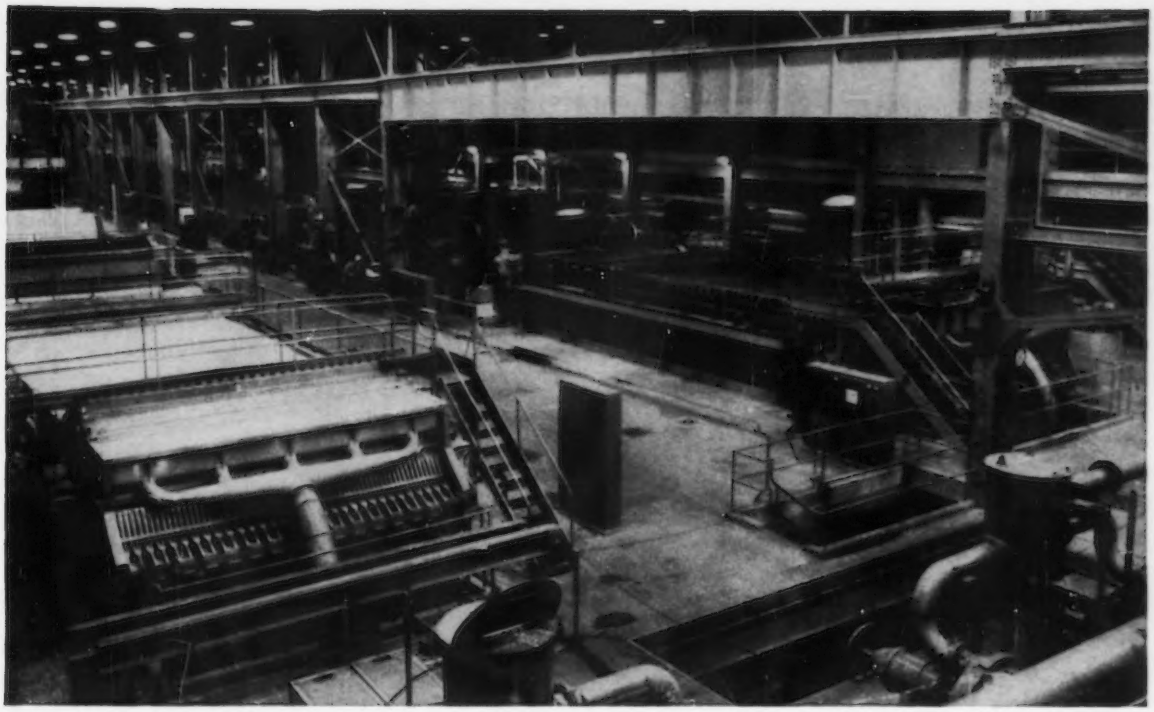


Both 180" Sandy Hill removable fourdrinier machines at Buckeye Cellulose Corporation's Foley, Florida plant operating on acetate and dissolving pulp, are custom designed units for fast and heavy duty and offer the most precise controls to regulate and maintain consistent quality standards.

BUCKEYE INSTALLS A SECOND SANDY HILL MACHINE

Now in production at Buckeye Cellulose Corporation in Foley, Florida, is a second pulp forming Fourdriner machine; sister to the one that started its profitable operation in June, '54. Both were designed and built by Sandy Hill.

There are many reasons for this repeat order. Here are a few of them:

1. The whole fourdrinier combines structural strength and simplicity of design.

2. Multiple manifold Sandy Hill Bertrams flow control unit assures **absolute uniformity of distribution of stock on wire.**

3. Sandy Hill Selective Drive—an all mechanical drive—gives operating ease and maintenance economy while controlling draws to a fine degree.

4. Special dryer section design provides **maximum convenience in working around dryer nest.**

5. Constant speed Roll Master Reel winds 10-ton jumbo rolls, loading hydraulically in starting and final position, with provision for pressure adjustment.

If you are planning a new pulp or paper mill—or improvements in an existing one—consult Sandy Hill. Your company can profit by the integrity of construction and faithful consideration of detail that has characterized Sandy Hill equipment for over 100 years.

Sandy Hill Congratulates Buckeye on doubling its capacity on high quality pulps.

THE
SANDY HILL
IRON AND BRASS WORKS
HUDSON FALLS, N. Y.

PJT NEW LITERATURE

"Acro-Smooth" Speed Control System

Details its line of electric powered fork trucks which feature this system, combining ultra accurate "inching" with fast acceleration. Also precise "inching" gives accurate load positioning and smooth travel for safe high stacking. Elwell-Parker Electric Co., 4205 St. Claire Ave., Cleveland 3, Ohio.

Guide to Nickel-Containing Casting Alloys

Presents condensed, informative data on the range of properties offered, industries served, and general applications for each of the alloys included. Booklet. The Readers Service Section, International Nickel Co., Inc., 67 Wall St., New York 5, N. Y.

Bauer Pump Through Refiner

Lists production and operating advantages inherent in a slow speed, high capacity, single revolving disc mill of this type. The No. 444-24-inch pump through refiner was designed primarily for small and medium size mills and provides excellent fiberizing of stock. Bulletin P-31. Bauer Bros. Co., Springfield, Ohio.

Curtiss-Wright Clutches

Describes five standard lines of spring clutches in bore sizes from ⅛ to 1 inch and torque capacity up to 1250 pounds-inches. Catalog. Marquette Div., Curtiss-Wright Corp., 1145 Galewood Dr., Cleveland 10, Ohio.

Condensed Guide to Hyster Trucks

Illustrates industrial trucks for a multitude of uses, ranging from 1,000 to 40,000 pounds capacity. Also includes performance data, dimensions and equipment specifications. Brochure. Hyster Co., P. O. Box 847, Danville, Ill.

DeZurik Control Valves

Lists valve bodies and actuators and the accessory line available for their control valves; valve sizing data is also included. Bulletin 150. Dept. CV, DeZurik Corp., Sartell, Minn.

Gesco Dumpers

Describes complete line of equipment for lifting and dumping drums, boxes, bags, and inplant trucks. Catalog. Conveyors & Dumpers, Inc., P. O. Box 567, West Caldwell, N. J.

Garlock Metal Packing

Contains comprehensive data for the correct selection, application and installation of metal packing, as well as explanatory illustrations. The last section discusses testing and service facilities to users in selecting and maintaining metal packing. Bulletin AD-166. Garlock Packing Co., 438 Main St., Palmyra, N. Y.

Hays Control and Instrumentation

Section 1 describes Hays all electric combustion control systems. Sections 2 through 6 list instruments according to the five major process variables and section 7 lists Hays receivers, including the universal electronic recorder. Bulletin 59-CO91. Hays Corp., Michigan City, Ind.

Improved Cycle Controller

Describes this improved impulse-sequence time-cycle controller and its applications. Also gives detailed information about the controller, its operation and attachments. Bulletin C311. Bristol Co., Waterbury 20, Conn.

Industrial Platform Trucks

Illustrates the features of the F-10 Prime-Mover which is used for transporting material, tools, and personnel, or for use as a foreman's supervisor's or inspector's vehicle. Bulletin. Prime-Mover Co., Muscatine, Iowa.

Liquid Penetration Tester

Illustrates the photoelectric fotosize tester and describes the operation of this instrument which can be operated by untrained personnel to get accurate and reproducible results. Bulletin 373-ST. Thwing-Albert Instrument Co., Penn St. & Pulaski Ave., Philadelphia 44, Pa.

Nuclear Density Gauge for Slurry and Liquid Lines

Covers the method of operation and performance advantages of this gauge when used for continuous, non-contact measurement and control of per cent solids in a slurry, specific gravity of a liquid and detection of interface position in pipelines. Bulletin SG. Ahmart Corp., 2236 Bogen St., Cincinnati 22, Ohio.

Shenango Tube and Bar Stock

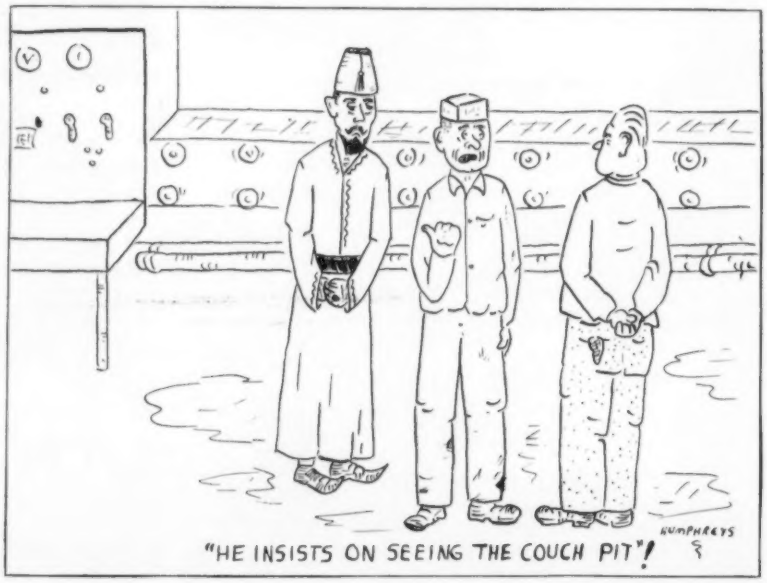
Offers detailed information on standard bar and tube stock available in GC Meehanite metal, GA Meehanite metal and Type 1 Ni-Resist. Also contains a physical properties chart as an application guide. Centrifugally Cast Products Div., Shenango Furnace Co., Dover, Ohio.

Superior Shaped Tubing

Illustrates and describes shaped tubing in square, rectangle, elliptical, oval and a great variety of other cross sections. Also covers methods of manufacture and tool charges, tempers and lengths in which furnished. Data Memo 17. Superior Tube Co., 1909 Germantown Ave., Norristown, Pa.

Lonergan Valves and Protectors

Covers the use of polyvinyl chloride in valve trim and diaphragm protectors. Also includes various applications and technical data concerning the use of PVC in various industries. Bulletin. J. E. Lonergan Co., 211 Race St., Philadelphia 6, Pa.



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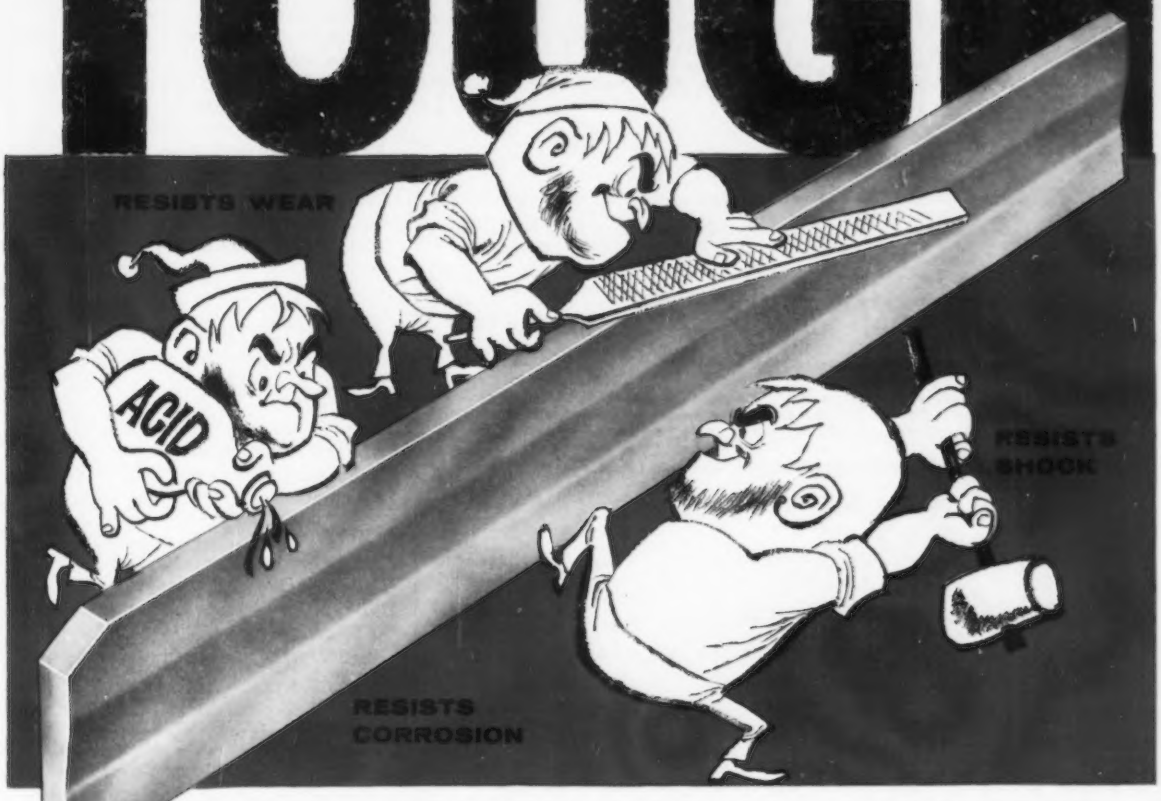

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Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	July 18	July 25	Aug. 1	Aug. 8	Aug. 15
1959	89.9	94.8r	93.4r	94.5r	93.8
	July 19	July 26	Aug. 2	Aug. 9	Aug. 16
1958	86.1	88.0	89.1	89.3	91.0

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2	94.4‡	95.5‡	95.0‡	84.1‡	—	—	—	—	—	—
1958	86.9	89.6	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	90.4	92.7	91.6	94.8	98.9	91.8	85.6	91.5
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	—

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	July 18	July 25	Aug. 1	Aug. 8	Aug. 15
1959	84	94	98	98	96
	July 19	July 26	Aug. 2	Aug. 9	Aug. 16
1958	83	93	93	92	93

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	86	89	94	93	95	95	83	—	—	—	—	—	—
1958	84	86	87	84	85	86	76	93	90	95	93	77	86

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Aug 15, 1959	LAST WEEK ENDING Aug. 8, 1959	CUMULATIVE TO DATE Jan. 1 to Aug. 15, 1959 incl.
% Activity	96%	98%	92%
TOTAL	325,729	336,991	9,807,012
Liner	111,840	113,579	3,373,372
Corrugating Material	50,623	52,837	1,494,833
Chip & Filler Board	5,042	5,031	164,297
Total Containerboard	167,505	171,447	5,032,502
Folding	57,695	61,971	1,786,118
Set-Up	13,113	13,132	369,673
Special Food Board	30,327	31,224	905,801
Other	57,089	59,217	1,712,918
Total Boxboard	158,224	165,544	4,774,510
Total Orders Received	298,923	366,851	
Unfilled End of Week	551,214	578,875	

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OBITUARIES

Walter R. Barker, 69, board chairman of Uarco, Inc., Chicago manufacturer of business stationery and forms, died in Santa Fe, N. M., on August 19. He left Chicago two years ago to live in Santa Fe.

A native of New York City, Mr. Barker came to Chicago in 1894 when his father, England J., founded the company. Mr. Barker became president in 1925, serving in the post until 1955, when his son assumed the presidency.

Tracey E. Lloyd, 65, vice president and director of Hinde and Dauch Paper Co. of Canada Ltd., Toronto, Ont., died August 17 at his Toronto home. He joined the firm when it was organized in 1909. He was a past president of the Canadian Association of Purchasing Agents.

Edward H. Barnes, 66, of Battle Creek, Mich., a former Michigan Carton Co. executive, died August 15 at Ford Hospital in Detroit. Mr. Barnes who had been in ill heatlh, suffered a stroke a few days before his death.

In 1953, he asked to be relieved of his job as general superintendent of two Michigan Carton Co. mills because of his health, but remained as a manufacturing consultant until his retirement in January of this year.

A. Robert Patchen, 66, retired vice president in charge of the New York division of Alling & Cory Co., wholesale paper merchants, died August 15 at his home in Largo, Fla.

Mr. Patchen was a director of the Paper Association of New York City. He retired from Alling & Cory in 1957.

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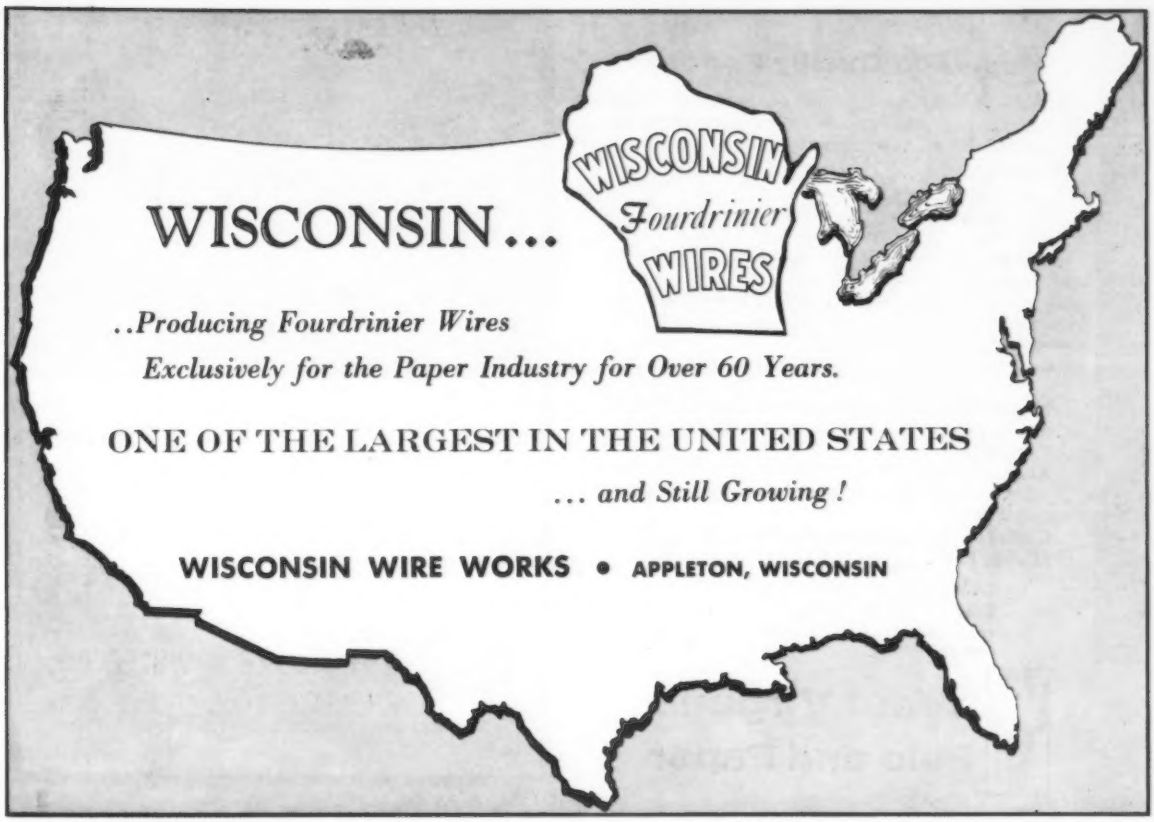

PRACTICAL PAPER TECHNOLOGY

by William Bond Wheelwright

This book begins with a survey of "Progress in the Paper Industry" and ends with a list of books recommended for collateral reading. The intermediate chapters are entitled: "How to Judge Paper"; "Physical Aspects of Paper"; "Practical Manual and Visual Tests"; "Essential Facts About Papermaking"; "Coated, Glazed and Specialty Papers"; "Permanence of Paper"; "Paper Difficulties in Converting"; "Paper as a Medium for Printing"; "Letterpress Printing"; "Offset Lithography"; "Intaglio Processes."

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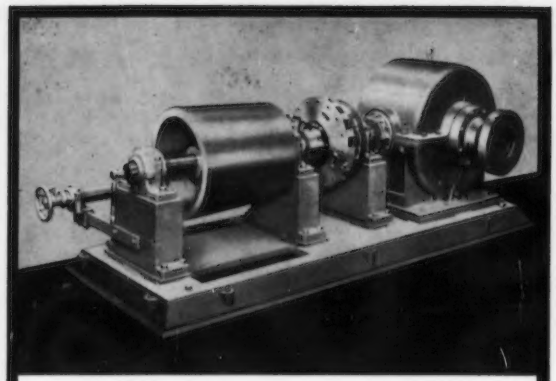

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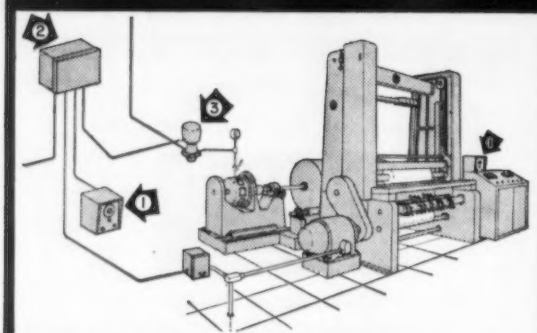

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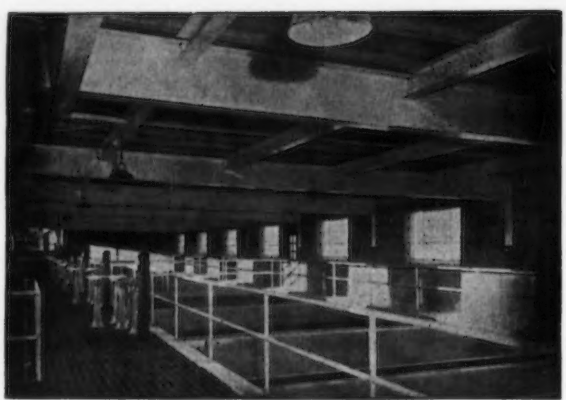

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S-7

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Young Engineer, paper mill experience preferred or a knowledge of steam and control systems to assist in design and specifications and train for Sales Engineering. Requires some travel. We are a division of a potential growth corporation. Located in Ohio. Submit resume to Box 254 care Paper Trade Journal.

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Graduate Mechanical or Electrical Engineer for new engineering and development work. Job will require some travel to operating units in North America. Will be located in Southeastern U. S. A.

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1—82" 10-10
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1—Model-C Cellophane Roto Bag Machine
1—#2CS Weber Cello Pouch Machine
1—Weber Model "CN" Cellophane Satchel Bottom Bag Machine
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1—27" x 44" Dietz Single-Fold Towel Interfolder
1—New Hudson Sharp No. 10-T Rotary Towel Interfolder
1—Hudson-Sharp C-Fold Towel Machine

A-31

Help Wanted

DESIGN ENGINEER

The rapidly expanding requirements of our Engineering Department require the addition of design engineers of proven capability. The men we seek may be familiar with papermachine design or not, but they must have experience in heavy machinery. They must have imagination and creative ability. They must be willing to work on the board sufficiently to **so *finalize their layouts*** that the job can be finished by detailers. They may also be papermachine specialists with a concentration of experience in one or more sections of the papermachine. They must have leadership qualities to assume increasing responsibility in a growing organization.

Reply with resume and present salary to Personnel Director, Valley Iron Works Company, Appleton, Wisconsin. S-14

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A-31

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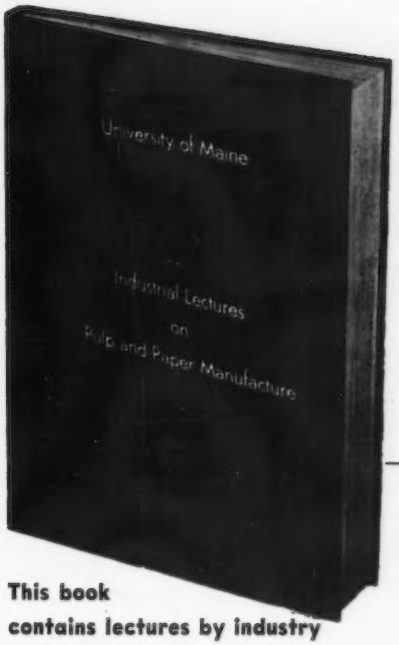

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Houghton & Company ..... —
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Hunt, Rodney ..... —
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Ruderman Machinery Exchange 54
Rust Engineering Co. 32
Ryerson, Jos. T., & Son ..... —

Sandoz, Inc. 38
Sandy Hill Iron & Brass Works 47
Scapa Dryers Inc. ..... —
Seaboard Air Line R. R. Co. .. —
Shartle Div., Black-Clawson Co. 52
Shawinigan Resins Corp. .... —
Sheffield Corp. ..... —
Shell Chemical Corp. ..... —
Shuler & Benninghofen ..... —
Shy, C. D. & Company 32
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Taylor-Wharton Company .... —
Tennessee Coal & Iron Co. ... —
Tennessee Corp. ..... —
Testing Machines ..... —
Texaco, Inc. 4
Texas Gulf Sulphur Co. ..... —
Thermal Equipt. Grp. ..... —
Thiele Kaolin Co. ..... —
Thomas Paper Stock Co. 51
Titanium Pigment Corp. ..... —
Towmotor Corp. ..... —
Turner Halsey Co. ..... —

Union Bag-Camp Paper Corp. .. 44
United Engrg. & Fdy. Co. .... —
U. S. Industrial Chem. Co. Div. of National Distillers & Chem. Corn. ..... —
U. S. Steel Corp. ..... —
United States Steel Export .... —
United States Steel Supply Co. —

Valley Iron Works ..... —
Vanderbilt R. T., Co. ..... —
Virginia Smelting Co. ..... —
Voith, J. M., G. m. b. h. ..... —

Waldron, John Corp. ..... —
Waldorf Industrial Controls .. —
Walworth Co. ..... —
Weber, H. G., Company ..... —
West End Chemical Div., Stauffer Chem. Co. ..... —
Westvaco Div., Food Mchy & Chem. Corp. .....Cover 3
West Virginia Pulp & Paper Co. 52
Weyerhaeuser Timber Co. .... —
Wheeler Roll Co. ..... —
Williams Apparatus Co. ..... —
Williams-Gray Co ..... —
Wisconsin Wire Works 51
Witco Chemical Co. ..... —
Woodpulp, Inc. ..... —
Wood's, T. B., Sons Inc. .... —
Wyandotte Chem. Corp. ..... —
Wyatt Metal & Boiler Works . —

Yarnall-Waring Co. ..... —

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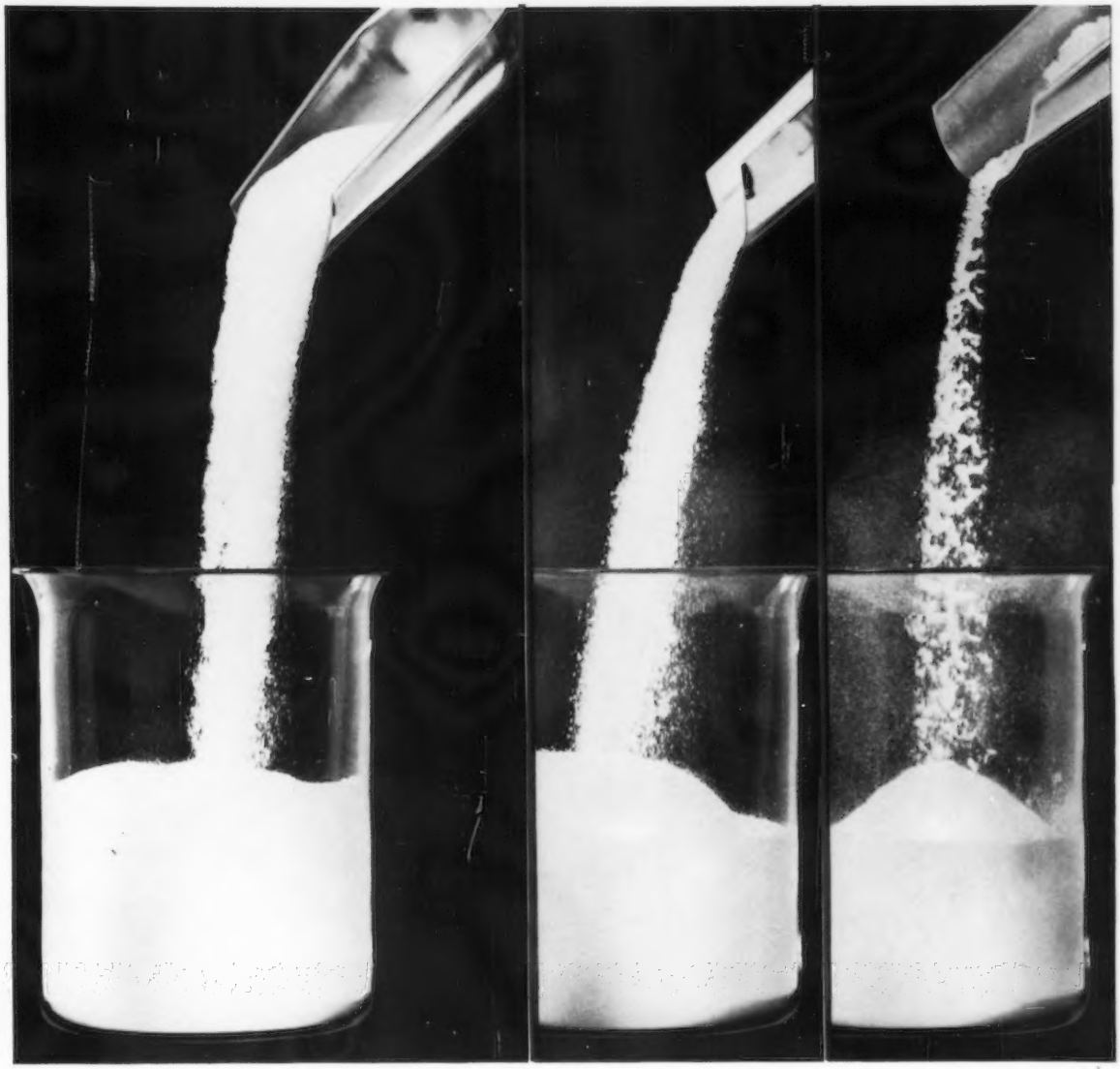

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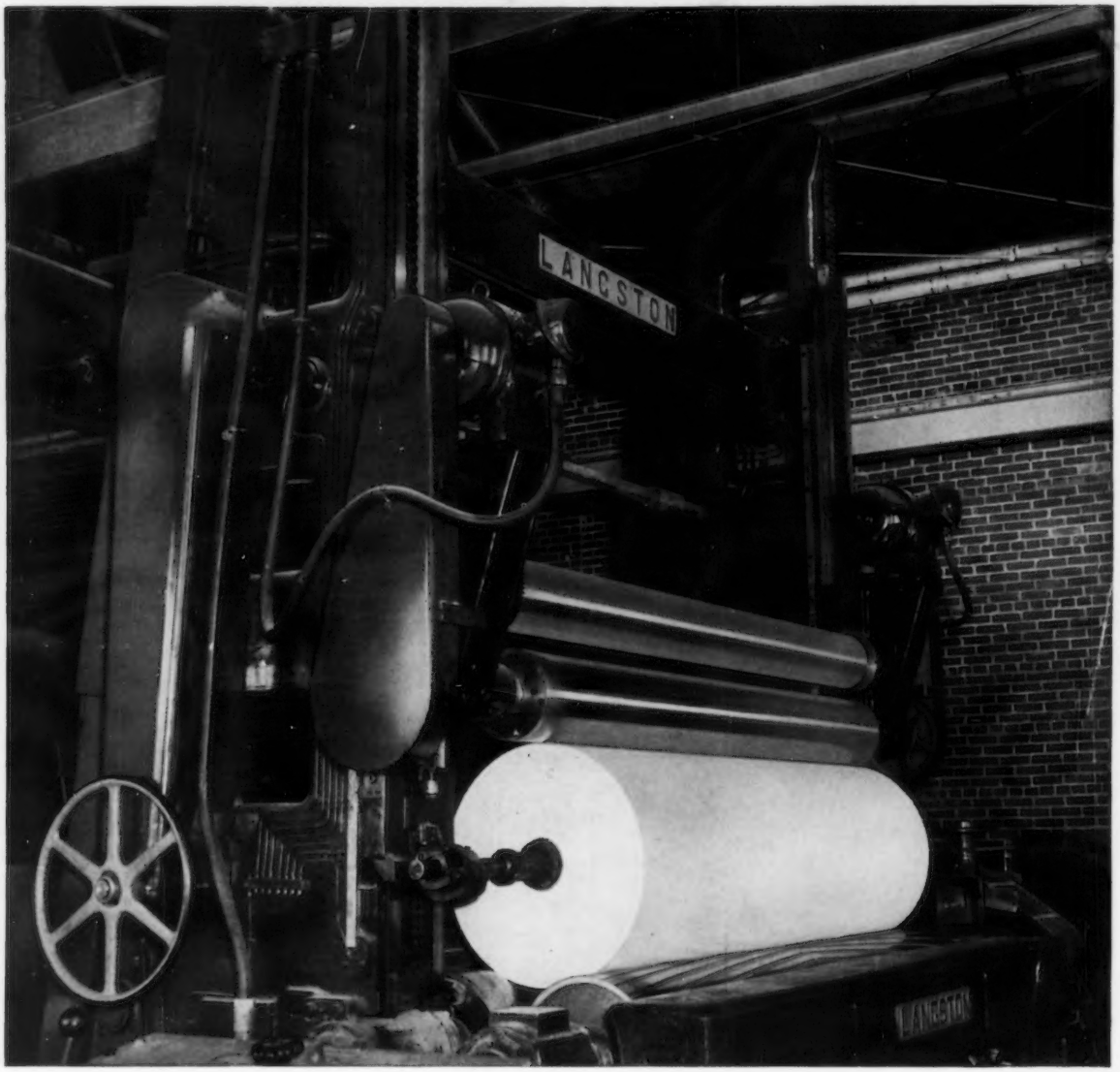

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